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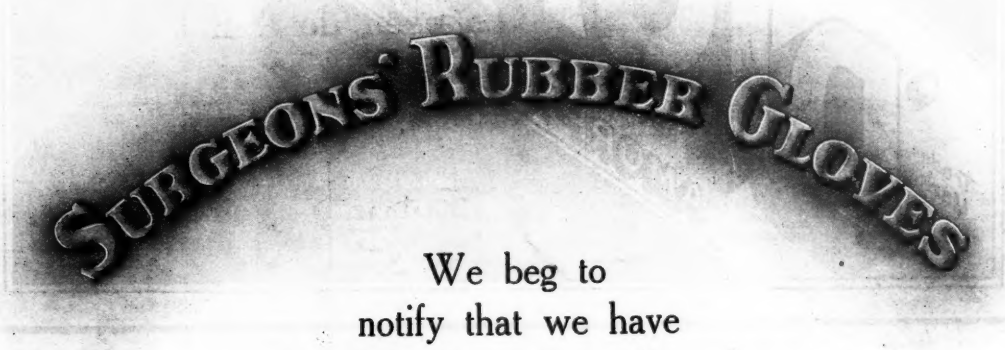

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HÆMOLYTIC AND WATER FEVERS.

BY W. J. PENFOLD, M.B., B.HY.,
AND
D. G. ROBERTSON, M.D., D.P.H.,
From the Commonwealth Serum Laboratories, Royal Park.

YAMAKAMI (1920)[1] has brought forward what he considers good evidence of the existence of hæmolytic fever. He discredits the findings of Hort and Penfold (1912)[2] on the results of the intravenous injection of pure distilled water into rabbits; in contradistinction to them he finds that the intravenous injection of suitable quantities of distilled water gives a typical fever, which he is satisfied is due to hæmolysis. He found these quantities to be equivalent to from one-one hundred and eighty-sixth to one-fifty-fourth of the body weight.

This direct challenge to the correctness of the work of one of us in a simple matter of fact caused us to repeat this portion of Yamakami's work.

Technique.

All the experiments were conducted on rabbits. The animals were carefully selected, any showing signs of injury or disease being rejected. They were kept under identical conditions as regards diet, rest and external temperature. They were housed in metal cages with sawdust-covered floors, in a room the temperature of which was kept as constant as possible at 15.5° C..

Preparation of the Water.

The glassware used in the experiments was scrupulously cleaned by treating with a concentrated sulphuric acid-potassium bichromate mixture. It was then rinsed with ordinary distilled water, followed by sterile freshly distilled water and then autoclaved. The rubber corks were boiled in a soda solution, mechanically cleaned, boiled in freshly distilled sterile water and autoclaved.

The still used consisted of a round-bottomed, two-litre, hard glass boiling flask fitted with a three-holed stopper, protected by tinfoil. Through one hole was passed a glass safety tube of 0.6 cm. bore going to the bottom of the flask and surrounded above by a cotton wool band which fixed an enveloping glass shield (a 5 cm. by 1.25 cm. test tube). Through the second hole was passed a glass feed-tube drawn out to a capillary point and extending about 3.75 cm. below the stopper; to the outside end of this tube was wired a small piece of india-rubber pressure tubing, protected at its end by a glass shield, which shield was held in position by a cotton wool band. The third hole was pierced by a glass tube connected with an ordinary spray trap, such as is used in Kjeldahl's ammonia distillation apparatus. This was joined by a rubber stopper to an upright condenser. The rubber stopper was protected by tinfoil. The delivery tube of the condenser was fitted with a glass hood, so that sterile water

EXPERIMENT No 1
RABBIT No 1 1620 GRAMMES AUSTRALIAN.
5 c.c. WATER INJECTED.
— 3/10 BODY WEIGHT
31-8-1921.
EXPERIMENT No 9
RABBIT No 9 1360 GRAMMES ENGLISH
7 c.c. WATER INJECTED
— 1/34 BODY WEIGHT
2-9-1921
EXPERIMENT No 2
RABBIT No 2 1500 GRAMMES AUSTRALIAN
9 c.c. WATER INJECTED
— 1/26 BODY WEIGHT
31-8-1921
EXPERIMENT No 3
RABBIT No 3 1440 GRAMMES AUSTRALIAN
15 c.c. WATER INJECTED
— 1/36 BODY WEIGHT
31-8-1921
EXPERIMENT No 10
RABBIT No 10 1700 GRAMMES ENGLISH
18 c.c. WATER INJECTED
— 1/34 BODY WEIGHT
2-9-1921
EXPERIMENT No 4
RABBIT No 4 1610 GRAMMES AUSTRALIAN
20 c.c. WATER INJECTED
— 1/37 BODY WEIGHT
31-8-1921
EXPERIMENT No 5
RABBIT No 5 1400 GRAMMES AUSTRALIAN
20 c.c. WATER INJECTED
= 1/16 BODY WEIGHT
1-9-1921
EXPERIMENT No 11
RABBIT No 11 1560 GRAMMES ENGLISH
28 c.c. WATER INJECTED
— 1/33 BODY WEIGHT
2-9-1921
EXPERIMENT No 6
RABBIT No 6 1700 GRAMMES AUSTRALIAN
22 c.c. WATER INJECTED
— 1/34 BODY WEIGHT
1-9-1921.
EXPERIMENT No 7
RABBIT No 7 1620 GRAMMES AUSTRALIAN
45 c.c. WATER INJECTED
— 1/36 BODY WEIGHT
1-9-1921.
EXPERIMENT No 8
RABBIT No 8 1420 GRAMMES AUSTRALIAN
30 c.c. WATER INJECTED
— 1/28 BODY WEIGHT
1-9-1921.
EXPERIMENT No 12
RABBIT No 12 1500 GRAMMES ENGLISH
32 c.c. WATER INJECTED
= 1/28 BODY WEIGHT
2-9-1921.
CONTROL TEMPERATURE CHART (EXPERIMENTS 1-4)
AUSTRALIAN RABBIT 1380 GRAMMES
NO INJECTION
31-8-1921.
CONTROL TEMPERATURE CHART (EXPERIMENTS 5-8)
AUSTRALIAN RABBIT 1460 GRAMMES
NO INJECTION.
1-9-1921.
CONTROL TEMPERATURE CHART (EXPERIMENTS 9-12)
ENGLISH RABBIT 1480 GRAMMES.
NO INJECTION
2-9-1921.
Injection
Temperature °F.
Time Hours

could be received. When not in use the delivery end of the still was covered by a glass shield (a 7.5 cm. by 1.25 cm. test tube), which was inserted within the hood and held in position by a cotton wool band. When distilling, the glass shield was removed from the delivery tube and the mouth of an autoclaved flask was inserted into the hood.

The flask, when not attached to the still, was provided with a glass cap cover, held in position by a cotton wool band, wound round the neck of the flask. The glass cap was of the same diameter as the hood, so that the flask and the glass shield of the delivery tube were readily interchangeable. The whole was assembled on a 75 cm. retort stand, the boiling flask being protected by an iron asbestos-lined air-bath. Prior to use, the whole still was autoclaved and during the distillations it was supplied with freshly distilled, sterile water. By these means all possibility of aerial contamination of the still was eliminated and it was considered unnecessary to boil the distillate, which was injected within half-an-hour of distillation. Ten cubic centimetres of the distillate failed to show any growth in bouillon.

Method and Rate of Injection.

The injections were made into the marginal veins of the ear, the hair over which was clipped short. The animals were allowed to crouch on the table in their natural position of rest and, provided the assistant maintained a slight but equal pressure on the whole length of both sides of the body by means of the flexor surfaces of his forearms, with one hand controlling the head, it was very exceptional for the animals to resist in any way. Movement on the part of the rabbit during the course of injection may cause the needle to slip out of the vein. This was prevented by holding the needle and the adjacent part of the ear margin between the index finger and thumb of the left hand. The injections were made with a 20 c.cm. all-glass syringe.

While the syringe was being refilled, when quantities of more than 20 c.cm. were to be injected, the needle was left in the ear and kept in its place by the gentle pressure of the assistant's finger and thumb on the vein, at the position of the needle's point. The injections were made at the uniform rate of 2 c.cm. per five seconds and the water was injected at a temperature of 102° F..

Method of Taking Temperatures.

Twelve English rabbits bred in capacity and six wild Australian rabbits recently caught in the bush were housed and fed under conditions identical to those observed during the injection experiments and during the course of one week their temperatures were taken half-hourly between the hours of 9 a.m. and 5 p.m.. It was found that the temperatures of the English rabbits ranged between 39.5° C. and 38.7° C. and those of the Australians between 39.2° C. and 38.7° C.. Variations of as much as 0.5° C. were observed in the thermometric readings of individual rabbits in the course of a day. A thermometer of tested accuracy was used throughout. This, well lubricated with liquid paraffin, was inserted into the rectum to a definite point on the thermometer and kept there until the column of mercury was observed to be constant. Prior to each observation the thermometer was shaken down to the constant level of 36.6° C.. Care was exercised in preventing the undue excitement of the animals. A difference of 1° C. in two readings, taken with a twenty minutes' interval between them, may be obtained if the first temperature is observed immediately after an animal has been struggling violently and the second after it has calmed down.

Hæmoglobinuria.

Both before and after the injections, specimens of urine were obtained from the animals by means of gentle suprapubic pressure. Hæmoglobin appeared in the urine within thirty to forty minutes after the injection and persisted for varying periods up to as long as six hours afterwards, according to the amount of water injected. Hæmoglobinuria was determined by the presence of the characteristic bands of oxyhæmoglobin in the spectrum and confirmed by the resulting band of reduced hæmoglobin after the addition of ammonium sulphide. Further confirmatory evidence was obtained by the benzidine-hydrogen peroxide test.

Experiments.

Twelve experiments were made with varying amounts of water prepared in the manner described. Four were done daily and one rabbit was kept each day under the same experimental conditions, except that no injection was given, so that a temperature control could be kept. The resulting temperatures of the injected and control animals are shown in the accompanying charts.

From these results it is apparent that distilled water is unable to produce fever on intravenous injection, although administered in the quantities recommended by Yamakami. We believe that Yamakami's distilled water was not prepared with sufficient care or that his rabbits suffered from some slight infection. It was shown by Hort and Penfold[3] and confirmed by Thiele and Embleton (personal communication) that distilled water sensitizes the body to bacterial intoxication and it may be that rabbits which have latent infections and normal temperatures may give a fever on the intravenous injection of even pure water. Using carefully prepared water, however, and healthy rabbits, it is not possible to produce fever by intravenous injection.

Conclusions.

1. If pure distilled water be injected intravenously into the healthy rabbit, no fever results, even if hæmolysis is well marked.
2. Intravenous injection of distilled water in sufficient quantity produces a slight fall of temperature in healthy rabbits.
3. No reliable evidence of simple pure hæmolytic fever exists. The fever in paroxysmal hæmoglobinuria is due to some unknown cause.
4. The most absolute care is needed in preparing water for intravenous injection, if fevers due to bacterial pyrogen are to be avoided.

References.

(1) Yamakami, R. (1920): "Hæmolytic Fever," *Journal of Pathology and Bacteriology*, Volume XXXIII., page 388.
(2) and (3) Hort, E. C., and Penfold, W. J. (1912): *The Journal of Hygiene*, Volume XII., page 361: "Micro-Organisms and Their Relation to Fever."

THE "MESTIZOS" OF KISAR, DUTCH EAST INDIES.

By J. S. C. ELKINGTON, M.D., D.P.H.,
Chief Quarantine Officer, North-Eastern Division, Department of Health of the Commonwealth.

SCATTERED through the relatively scanty modern literature relating to European colonization of tropical countries are found various references to a Dutch community which has resided for several generations at Kisar, a small island situated some 30 miles northward from Timor, between the parallels of latitude 8° and 9° south of the equator. Professor MacMillan Brown ("The Dutch East," page 204) has woven around this community a romantic tale of settlement in 1655, of wise government by a Dutch sergeant and of retention of the Protestant religion through many vicissitudes extending over 250 years. On the other hand a leading antagonist of the settlement of tropical Australia by a white race has publicly denied (at the Australasian Medical Congress of 1920) the very existence of this community and even of the island itself. The matter is one of much practical interest, as it is in reality an actual, if unpremeditated, experiment on a fairly extensive scale in white settlement in the tropics. Advantage was therefore taken during a recent official visit to the Dutch Indies of facilities afforded by the Dutch authorities for access to official records relating to these people (who are officially termed "Mestizos") over a period of more than 100 years. My inquiries in the Small Sunda Islands yielded an opportunity of landing at the island itself and of meeting a large number of the Mestizo residents. Others were also met at Koepang (Dutch Timor).

Historical.

Genealogical trees, which have been compiled by the Dutch administration from the results of exhaustive local inquiry, show that at various dates between 1783 and 1819 there came to Kisar as soldiers or officials nine men of Dutch origin who took to themselves wives. Of these five married women of Dutch blood like themselves and four married women who were more or less tinged with coloured blood. None of the families date back further than the last quarter of the eighteenth century at earliest. In 1819 the Dutch East India Company decided to withdraw from Kisar the little garrison of soldiers and officials which had been posted there for over a hundred years previously. All the European families except these nine and probably three or four others of originally European name who had become almost indistinguishably submerged in the native population, thereupon left the island.

The Dutch had built two small forts, one near the landing on the western side and one about a couple of miles inland on a small hill commanding the native village of Wonreli. The little European community left behind after the withdrawal appear to have taken up their abode in and about the latter of these forts, the settlement being called *Kotta Lama*, the Malay equivalent of "Old Town" or "Old Fort." The commandant of the post in 1817 was a certain Johannes Willem Joostensz, who had been born in Macassar in 1767 of Dutch parentage and who went to Kisar first in 1783. He there married a Dutch girl in 1788. He remained after the withdrawal and many of his descendants are now living in Kisar or at Koepang. Amongst the documents made available by the Resident at Koepang was a copy of a personal statement made in 1817 by this man, which gives precise dates of the principal details of his personal history. Portions of his statement furnish quaint sidelights on the customs of the Dutch in the Indies 150 years ago. For example, Joostensz as a child was taught dancing so that he might dance for the amusement of the Governor of Banda and the governor was so pleased with the results that the soldier who had acted as dancing master was made a non-commissioned officer. Joostensz also refers casually in his official statement to the fact that when his eldest legitimate son was baptized in the old church at Wonreli, one of his natural sons by a heathen woman living in an adjacent island was baptized at the same time.

The coloured population of Kisar numbered at least several thousands at the time of the withdrawal of the Dutch garrison. At the present day it comprises some 9,000 people. There was, however, very little inter-marrying between the European community and the natives after the withdrawal, a fact which can be checked fairly accurately from the genealogical trees. The Dutch East India Company discouraged marriages by its employees with native women and encouraged them to marry Christian wives of European or mixed origin. This tradition appears to have persisted throughout their history, even at their most submerged stage.

For some sixty years after 1819 the little community was practically forgotten and unvisited. Until the island is seen this is rather difficult to understand and a suggestion has been made to explain the continuance of European physical characteristics by the visits of whaling vessels. From a seaman's point of view, however, Kisar is a wholly unattractive place for a deep-sea sailing vessel. It is almost square in outline, possesses no harbours nor good anchorages (over 200 fathoms of water is found a short distance outside its dangerous reefs) and has no attractions in the way of wood or water readily accessible to ships' boats. From the sea it looks a dry, unattractive place. The old Portuguese town of Dilly (Timor) is readily reachable in either monsoon and possesses an excellent harbour. Several better places than Kisar from the seaman's point of view are within a day's sail. The disturbed conditions and interference with local administration which formed an aftermath of the Napoleonic wars and the British occupation of Java, together with extensive military operations over a period of many years by the Dutch against native kingdoms in Java and other islands, seem to have caused the Kisar people to have been totally overlooked, even to the extent of their omission from the records of civil status.

During the 'eighties of last century Baron Van Hoëvell, then Resident at Ambon (Amboina), in

which district Kisar was then located for administrative purposes, became aware of this community and thereafter took much interest in them. They had degenerated very much, both physically and mentally, had relapsed into heathenism and had also lost the Dutch language. They had passed under the rule of the native Rajah of Wonreli and, except for the tenacity with which they kept their marriages within their own community and retained their family names, had practically lost all marks of European civilization. Several families are said, however, to have preserved their family Bibles up to 1908, when they were unfortunately destroyed in a typhoon which swept the island.

Baron Van Hoëvell's efforts resulted in assistance from the Dutch Government for the rescue of these descendants of forgotten Dutchmen from their lowly state. Christianity was re-introduced, marriages were celebrated in accordance with the regulations for native Christians and openings were provided for those who wished to proceed to other parts of the Indies. A *Wijkmeester* or head man was appointed. This official, Mr. C. Caffin, still holds the position and at the age of over 70 is a tall and striking-looking man who would pass anywhere for a bronzed European. Attempts were made to employ Mestizos in the navy and in the police, but without much success. Eventually twelve houses were built at Koepang (Dutch Timor) for the use of any of the Kisar people who desired to proceed there. Free education for their children was provided at the European school at Koepang and they were encouraged to work at various industries.

The community now numbers some 200 at Kisar, with about another hundred at Koepang and in various parts of the Indies. One of the Caffin family is a leading merchant at Gorontalo, in North Celebes, another is an officer of the Civil Service in charge of one of the neighbouring islands and a third is a managing clerk for a commercial firm in Dilly. A fourth is *Wijkmeester* of Kisar. Trades carried on by the Mestizos at Kisar and Koepang comprise weaving of a fairly good quality of cloth for sarongs and other native garments, chairmaking, carpentry and tailoring. They also breed goats, cultivate maize, vegetables and fruit and catch fish. Their houses at Kotta Lama are clean and well kept, but, except for a little European furniture, do not differ materially from those of the natives in the neighbouring village.

Personal Inquiry.

Some twenty-four of these people of all ages were interviewed at Koepang on May 3 and 10, 1921, another eight were seen on the steamer between Koepang and Kisar and on May 5, 1921, a visit was paid to Kisar itself. I was then able to visit their town of Kotta Lama and the native village of Wonreli and to see the majority of the Mestizo residents.

There can be no reasonable doubt as to the European origin of these people. Fully a third of those seen were of obviously north European descent, with fair hair, blue eyes, fair complexion and skin and distinctly European features and build. European colouring and complexion were not uniform in any one family seen, but even in those families and individuals who show considerable intermixture with native blood, the European type of features persists. A number of really good-looking people were seen, any of whom could have passed for a European of unmixed blood. It was a curious experience to see at the landing place these flaxen-haired, fair-skinned, blue-eyed folk, speaking only Malay amongst themselves, gathered in little groups apart from the crowds of natives against the background of the old fort walls.

The head teacher of the European school at Koepang spoke highly of the mental attainments of the Kisarese children under his charge. There is no mediocrity amongst them; they react to education either very well or very poorly. Copybooks and school records produced showed a high average amongst the majority.

The report of a medical examination conducted in 1904 at Kisar described the Mestizo children of that day as mentally backward and physically degenerated. Inspection during my visit showed no obvious evidence of physical degeneration. Malaria exists in Kisar and of some twenty children examined, six had splenic enlargement of moderate extent. It is probable that the active and practical interest taken by the Government in their welfare of late years has improved their food supply, both in scope and quantity, with consequent improvement in the physique and mentality of the present generation.

The adults seen were for the greater part healthy, robust-looking people. Some of them were pock-marked. A severe outbreak of small-pox is recorded as having occurred about 1901. The fertility of the women is very marked and there appears to be no tendency for the race to die out. Up to recent years the girls have married at an early age and motherhood at fourteen is not unusual.

In response to a request for suggestions in connexion with the welfare of these people, I pointed out to the Chief Medical Inspector of the Civil Medical Service the desirability of undertaking a series of Binet-Simon or Porteus tests for mental reaction amongst Kisarese children at the Koepang European School and also at Kisar and of making an examination for hookworm, in view of the known influence of this disease on mental reaction and general development.

Conclusions.

The following conclusions may be drawn:

1. That nine families of originally north European or mixed north European and native blood have persisted on Kisar for over one hundred years and have bred to five and six generations. In the case of the Joostensz family, the known date of birth of the eldest Kisar-born child of European blood was 1789. His descendants down to the year 1914 numbered thirty-eight at least and possibly more. His father, J. W. Joostensz, Commandant at Kisar in 1817, was born at Macassar in 1767, giving an uninterrupted period of tropical residence for this family of 154

years on the paternal side and at least 135 years on the maternal side.

2. That this has not been accompanied by loss of European characteristics of complexion and features, except as a result of admixture of native blood, and that even when so diluted the European physical characteristics still come out strongly in the fifth and sixth generations.

3. That the European standard of mentality, as shown by reaction to European methods of education, persists in substantial degree after five and six generations.

4. That these characteristics have survived in spite of environmental conditions and associations lasting for over sixty years, from 1819 onwards, and probably for some seventy years or more, which are generally supposed to be totally unsuitable for persons of European stock. These conditions have included native standards of food and food supply, endemic malaria, the psychological effect of what must have been for the earlier generations an acute sense of abandonment by their own race, life under the rule of native chiefs, constant association with a native race of low mentality, loss of European language and European religion, inter-breeding to a high degree and constant exposure to a tropical climate.

5. That there is nothing in the available history of these people to show that a tropical climate *per se* has tended to produce degenerative effects on them or to limit fertility.

6. That whatever evidence they may have shown of lowered physical or mental activity in the past can be fully explained by the environmental conditions of food supply, malaria and particularly of native associations, aided possibly by the accentuation of stock-weaknesses arising from inter-breeding over several generations.

7. That the measures adopted by the Government during recent years appear to have resulted in definite improvement in their physical and mental condition, particularly amongst the children of school age.

References.

The following is a list of references to publications and official documents containing information relating to the Kisarese Mestizos which were consulted in connexion with the foregoing inquiry:

1. Family story from J. W. Joostensz, Commander of the Fort at Kisar, 1817.

2. A report on the physical condition of the Mestizos, Dr. Huijsman, 1904.

3. Fragment of an article by G. W. W. C. Baron Van Hoëvell, 1889.

4. Genealogical trees of the Mestizos at Kisar.

5. Report on Kisar by Lieutenant Testeege, *Gezaghebber* at Kisar from about 1913 to 1916.

6. *"Vitense Kolonien,"* Van Rol.

7. *"Reis H. M. Siboga," door* Dr. Max Weber.

8. Pamphlet by A. B. Meyer: *"Die Europäische Colonie auf der Insel Kisir,"* 1882. See 10.

9. "The Dutch East," Professor MacMillan Browne.

10. *Encyclopædie van Nederlandsch Oost Indië*, II., H-M. Article: "Kisar." With references to 8 and 11.

11. Articles by G. W. W. C. Baron Van Hoëvell. For references see 10.

THE TREATMENT OF GONORRHŒA IN THE MALE IN GENERAL PRACTICE.

BY NORMAN M. GIBSON, O.B.E., M.B.,
Honorary Assistant Medical Officer for Venereal Diseases, Royal Prince Alfred Hospital.

THE treatment of gonorrhœa in the male may be described under two headings: (*i.*) general measures, (*ii.*) local measures.

General Measures.

Absolute rest in bed during the first week is desirable. As the patient is not usually agreeable to this, he should be advised to rest as much as possible during the acute stage. A suspensory bandage and gonorrhœa bag should be prescribed. Cleanliness should be insisted upon, the genitals being frequently washed with warm water. The habit of blocking up the discharge with wads of wool should be strongly discouraged. The diet should consist of food mainly derived from fats and carbo-hydrates; after the acute stage meat is allowed. Alcohol and condiments are considered harmful. The proper mental diet is of great importance. The disease itself makes the sexual organs sensitive, hence it is necessary to avoid all outside sources of stimulation.

Strict attention should be paid to the bowels.

Drugs.

Drugs prescribed in the treatment of gonorrhœa may be divided into three groups: (*i.*) sedative, (*ii.*) antiseptic, (*iii.*) specific.

Among the sedative drugs *Mistura potassii citratis cum buchu* is useful while there is scalding.

Morphine suppositories containing 0.015 grm. to 0.03 grm. or atropine suppositories containing 0.85 mgrs. are often used in acute posterior gonorrhœa; they tend to prevent anti-peristalsis and so lessen the risk of complications by extension of the disease.

Among the antiseptic drugs, hexamine, salol and boracic acid may be mentioned; they are considered useful in secondary infections by other organisms.

So-called specific preparations, such as sandalwood oil, copaiba and cubebs are of no use and frequently do harm, by upsetting the stomach and undermining the health of the patient. They merely cause œdema of the mucous membrane and thereby decrease the discharge temporarily.

No one can claim that any medicine is a specific for gonorrhœa, yet many patients get well by taking medicine only. These fortunate people are possessed of a high natural immunity against the disease.

Colloidal Preparations.

These preparations were introduced by McDonagh and are still on their trial.

We find their use attended by benefit in a first attack of acute gonorrhœa and in complications either by extension or metastasis. In a first attack of acute gonorrhœa they should be used as early

as possible, the following intramuscular injections being given into the buttock:

First day	"Pallamine"[1]	0.5 c.cm.
Sixth day	"Pallamine"	0.5 c.cm.
Twelfth day	"Trimine"[2]	0.5 c.cm.
Twenty-fourth day	"Trimine"	1.0 c.cm.

They do not appear to prevent extension of the disease to the posterior part of the urethra, but when this occurs it is more or less symptomless. In the same way, if epididymitis supervenes, it is subacute from the beginning. Probably their effect is in some measure due to limiting anti-peristaltic movements. The colloidal preparations are of great value in the treatment of complications.

In epididymitis, "Trimine," followed by "Intramine," may be given.

In arthritis three injections of "Intramine" (2 c.cm. to 5 c.cm.) should be given at intervals of three or four days, followed by an injection of "Trimine" (1 c.cm.) six days later.

I have personally seen most wonderful results from the use of "Intramine" in acute arthritis.

It is inadvisable to apply these forms of constitutional medication to patients in a debilitated state of health.

Antiphlogistic treatment, in the shape of hot sitz-baths, is most useful in the acute stages, more particularly when the posterior part of the urethra is involved.

Vaccines.

For some years past various observers have reported on the results of vaccine treatment. These results not being uniformly successful, led to vaccines falling into more or less disuse till they were recently resurrected by Thomson with his detoxicated vaccine. Thomson's vaccine contains the active principle of a number of strains of gonococci, the toxic portion being removed. Owing to this circumstance, very large doses can be administered in any stage of the disease without producing any appreciable local, focal or general reaction. The reason for the comparative failure of ordinary vaccines lies in the fact that owing to their toxicity only very small doses can be injected. Detoxicated vaccines give very favourable results and should be used in all suitable cases, particularly in the acute stage. If used as a routine, complications are less frequent and when they occur are of lesser severity.

We usually make our detoxicated vaccine of a strength of 10,000 millions per cubic centimetre and containing about twenty strains of the organisms. Three injections are given intramuscularly at intervals of four days:

First day	5,000,000,000
Fifth day	10,000,000,000
Ninth day	10,000,000,000

Such a course of injections produces as a rule a strong reaction in the serum when examined by a complement fixation test. If the reaction be not produced, the prognosis is not favourable.

[1] "Pallamine" is the synonym of colloidal palladium.

[2] "Trimine" is a proprietary preparation of iron, manganese and zinc.

Local Treatment of Gonorrhœa.

All authorities on the treatment of gonorrhœa are agreed that local treatment is essential in order to obtain the best results.

It has been argued that local treatment causes more complications. It is sufficient to say that this argument has not been substantiated by the experience of those best qualified to judge. It is true, however, that if local treatment is not wisely controlled, complications are more frequent.

Local treatment may be described under three headings:

I. (*a*) Irrigation or (*b*) injection.

II. Massage of the prostate gland and seminal vesicles.

III. Instrumental treatment.

I.—(a) Irrigation.

The handiest apparatus for use is the Wyndham-Powell irrigating apparatus, which consists of a douche can, rubber tubing with clip to control the flow of solution, an irrigating shield and a nozzle. This apparatus can be kept sterilized and ready for use in the surgery, only the shield and nozzle being sterilized between irrigations.

Potassium permanganate (1 in 8,000) is the irrigating solution most commonly used in acute and chronic gonorrhœa. Silver nitrate (1 in 10,000), alternated with potassium permanganate, is sometimes administered in cases in which the gonococcus persists in the discharge.

If there is secondary infection, solutions such as oxy-cyanide of mercury (1 in 10,000), perchloride of mercury (1 in 50,000) or silver nitrate (1 in 10,000) may be used. Zinc sulphate (1 in 500) is commonly used at the end of the trouble when the discharge is mucoid in character.

By the use of irrigating antiseptic solutions, one can only hope to cleanse the urethra, washing away the surface organisms and pus and temporarily leaving the surface as an unfavourable medium for further bacterial growth.

It is a mistake to use strong solutions for irrigation of or injections into the urethra, as damage will be done to the tissues, resulting in stricture later on. All solutions should be at a temperature of from 32° C. to 38° C..

Method of Procedure.—The patient should first pass water and the prepuce and *glans penis* must be washed with a 1 in 2,000 solution of mercury biniodide or a 1 in 40 solution of carbolic acid. The douche can having been filled, the clip is released and the flow of solution is controlled by the thumb and forefinger. The nozzle is inserted and the solution allowed to distend gently the urethra. By withdrawing the nozzle the solution is allowed to escape. If this is carefully done, the patient should not experience any pain. As soon as the urethra will allow full distension without pain, an attempt should be made to wash the blad-

der out. As a rule, on about the fourth or fifth day the solution automatically goes back into the bladder. As long as this procedure is carried out without pain to the patient, there is no risk of complicating the condition. It is estimated that from 70% to 80% of patients develope an infection of the posterior portion of the urethra; very often this is unaccompanied by subjective symptoms and it may occur whether the patient be subjected to local treatment or not. From my experience at the Australian Dermatological Hospital I believe that posterior complications were far less frequent after the urethro-vesical method of irrigation was adopted.

Irrigations should be begun at the earliest possible moment and carried out once or twice daily. They should then be gradually decreased in number as the discharge subsides, until, finally, on disappearance of the discharge they may be discontinued.

As a rule, the discharge assumes the character of a gleet within three weeks.

After the acute stage has passed the patient may be taught to attend to his own irrigation.

I.—(b) Injection.

This method is apt to appeal to both practitioner and patient alike, as it is easy and can be carried out in secret. Its disadvantages are that it causes more complications, particularly secondary infection and that the urethra cannot be properly cleansed. If adopted, the surgeon should take it upon himself to teach the patient the technique in his surgery. Potassium permanganate is the best injection to prescribe in acute cases, in the chronic stages argyrol (5%), protargol (0.5%), silvol (5%), zinc sulphate (4%) are useful. Silver salts are contra-indicated in acute gonorrhœa, as they do damage to the mucous membrane and frequently cause stricture. The introduction of soluble bougies containing organic silver salts is not advised, owing to the risk of leading to stricture formation.

Treatment by irrigation or injection is contra-indicated in hyperacute gonorrhœa of either the anterior or the posterior portion of the urethra and in acute epididymitis.

II.—Massage of the Prostate Gland, Seminal Vesicles and Cowper's Glands.

During the decline of the acute stage, occurring usually in the third week, an examination *per rectum* should be made and notes taken of the general outline of the prostate gland and seminal vesicles. As it is estimated that from 70% to 80% of all patients get involvement of the posterior part of the urethra, very gentle massage of these glands should be undertaken twice weekly, so as to keep the prostatic and ejaculatory ducts from becoming blocked. If this is done systematically and with care, one can prevent severe involvement of these glands. Frequently the posterior part of the urethra becomes infected without causing any subjective symptoms. Therefore, whether the patient complains or not, a rectal examination should be undertaken. When the patient presents symptoms of acute posterior urethritis and a rectal examination is painful, one should refrain from interference until the condition has settled down, the patient being treated by general measures in the meantime.

In the decline of the acute stage massage should be re-commenced, the operation being repeated every second day or sometimes daily, so as to keep the glands draining freely, otherwise one might be faced with such serious conditions as prostatic or vesicular abscess.

In the chronic stages, one should massage vigorously twice to three times weekly, so as to empty the glands completely of their purulent contents.

Infection of Cowper's glands occurs in from 3% to 4% of cases. It is a most difficult condition to treat, as an abscess sometimes forms and points to the perineum behind the scrotum and requires incision. If a Cowper's abscess be incised, it is wise to warn the patient of the risk of urinary fistula. In chronic inflammation of these glands massage is necessary on the same general principles as for the prostate gland and seminal vesicles. Chronic Cowperitis frequently relapses, the best treatment then being excision of the gland.

Abscess of the prostate gland, which frequently causes retention of urine, should be treated in the first place by general measures, absolute rest in bed and frequent hot sitz-baths. Morphine suppositories may be prescribed.

A prostatic abscess usually bursts into the posterior portion of the urethra, after which the patient experiences immediate relief. If it causes persistent retention, an attempt should be made under anæsthesia to burst it by gentle but firm pressure *per rectum*. It may be even necessary to perform perineal prostatotomy.

III.—Instrumental Treatment.

No case of gonorrhœa is efficiently treated unless the urethra is finally dilated. It is true that many patients get well without the passage of instruments, but, at the same time, we know by experience that gonococci frequently hide themselves away under the surface of the mucous membrane or in such places as Littré's glands or the prostate gland and seminal vesicles and produce a relapse at a far distant date, perhaps when the individual gets married. Instruments are given for the purpose of affording better drainage, to prevent and sometimes to cure stricture and in some cases as a provocative measure as one of the criteria of cure.

Dilatation of the urethra by the passage of curved metal sounds should be commenced when micturition becomes normal, provided the discharge is insignificant and the urine clear, apart from shreds and phosphates; the presence of a few gonococci is no contra-indication.

It should be repeated at intervals from five to seven days, provided the patient's condition conforms to the standard set out above, until the urethra has been well dilated. The best sounds to use are Clutton's, sizes 18/22 to 26/30.

Not more than two sounds should be passed at one operation.

Too much stress cannot be laid on the necessity for care in the passage of instruments, so that no pain be caused.

It is well to remember also that if bleeding be produced, some harm will be done.

It is often necessary in cases with a narrow meatus to perform meatotomy under local anæsthesia, so as to admit of the passage of the largest sound.

I venture to say that if all patients were treated on the above lines, there would be no stricture for the surgeon to treat.

The average patient will get well if treated by the methods I have described; if the condition persists, it is then necessary to diagnose the particular lesion or lesions and to treat them separately. This is best done by the use of the urethroscope, when the whole of the urethra is explored from the neck of the bladder to the meatus and lesions treated by various methods too exhaustive to describe in this paper.

Standard of Cure.

It is useless for any practitioner, specialist or otherwise, to claim any results with reference to the cure of gonorrhœa unless as a routine measure he has made each patient conform to a reasonable standard of cure. It is an unfortunate fact that the first test is very often a biological one and results in the ruination of some unfortunate female.

It is a fallacy to say that because a patient has no longer any symptoms and presents no discharge, he is cured, even supposing he has successfully passed a liquor test or had intercourse without relapse. Far too many rely upon the microscopical examination of the gleet and make this their criterion of cure.

It is well known that gonococci may not be detected in several microscopical examinations, though they are still present in some such situation as the seminal vesicle, prostate gland, Cowper's glands, Littré's glands or even underlying a stricture formation.

The standard of cure advised is as follows:

1. Absence of discharge or gleet, other than that of a mucoid character, not containing more than a few pus cells.

2. Absence of shreds in the urine held for five or six hours, preferably over night.

3. Prostate gland, *vesiculæ seminales,* Cowper's glands normal on palpation and their expression after massage pus-free. This test should be repeated three times at intervals of four days.

4. If the patient has not already been through instrumental treatment, a curved sound should be passed as a provocative measure and slides taken on the two days following. The slides should not contain more than a few pus cells. An irrigation of silver nitrate (1 in 6,000) may also be given as a provocative measure.

5. Finally, the blood should be examined by the gonococcal complement fixation test. No patient is to be regarded as cured and fit to marry as long as a reaction is obtained to this test.

Reports of Cases.

TORSION OF THE SMALL INTESTINE.[1]

BY H. T. ILLINGWORTH, M.B., CH.M.,
Toowoomba Hospital, Queensland.

Previous History.

J.H.M., aged 18 years, a farm worker, single, gave the following history:

Eighteen months ago he complained of an attack of severe pain in the right iliac fossa, without vomiting, since shown to be the first of a series of attacks of appendicitis.

His second, severe attack commenced suddenly six months ago with diarrhœa and generalized abdominal pain settling down in the right iliac fossa, a little below and lateral to McBurney's point. The tongue was furred; the pulse rate and temperature were slightly raised. A diagnosis was made of chronic appendicitis with a subacute exacerbation. The appendix was removed at this hospital on February 12, 1921, by the usual McBurney's incision, without drainage. A little difficulty was experienced in removing the appendix, which was long and bound down to the posterior wall in the usual position by one or two troublesome adhesions. The patient made an uninterrupted recovery and was discharged from the hospital on March 2, 1921.

Present History.

On July 30, 1921, the patient, who had been in the best of health since the operation and had done his usual heavy farm work, ploughing, riding, etc., was carrying cow feed (sorghum) on his shoulder when he fell over the stubbles of the sorghum, but did not appear to hurt himself. He finished carrying the feed and shortly afterwards had tea, but did not feel well, being conscious of slight pain in the mid-epigastrium. However, he went to bed and slept fairly well. He awakened suddenly at about two o'clock next morning with severe pain in the mid-epigastrium, just below the costal arch in the mid-line. Vomiting of greenish material followed at 7 a.m.; the patient was unable to obtain relief from pain. About mid-day the pain moved to the middle of the hypogastrium and became more generalized over the abdomen and acute. The ambulance was summoned and the patient brought to this hospital.

The bowels were opened once during the day and the patient passed water freely. He vomited green, non-offensive material two or three times while in the ambulance car.

Condition on Admission to Hospital.

When admitted at 6 p.m. the patient walked in from the car with a marked stoop and was evidently in great pain. On being put to bed he lay in the right lateral decubitus, with the right thigh flexed on the hip. The facies was normal; the tongue was furred and not very moist.

The temperature was 36° C. in the mouth, 36.8° C. in the rectum. The pulse was regular, of fair tension, good force and its rate 60 per minute.

The abdomen was tender all over, but more markedly so over the scar area in the right iliac fossa. There was no definite rigidity and no mass was palpable.

Tenderness was elicited by rectal examination. No mass was felt.

The urinary, respiratory, circulatory and nervous systems were apparently normal.

A diagnosis of post-operative adhesions, with possible intestinal obstruction, was made and an enema and close observation were ordered by the Honorary Medical Officer. A hot bag was applied to the abdomen. An hourly chart was kept. Specimens of vomited material and stool were saved.

At 11 p.m. there was a slight result from the enema, but no ease from the hot bag. The temperature was 36.5° C., the pulse rate 88 per minute and the respiratory rate 26 per minute.

He was examined by the senior Resident Medical Officer, who found that the pulse was regular and its tension fair

[1] Read at a meeting of the Queensland Branch of the British Medical Association on September 2, 1921.

and force good. The tongue was dry and very furred. *Facies Hippocratica* was marked and the patient seemed to be in severe pain. The abdomen did not move at all with respiration. It was rigid on palpation. There was dulness in both flanks, especially the right, and also in the lower hypogastrium. The whole abdomen was very tender, even to gentle palpation. The respiratory, urinary, circulatory and nervous systems were unaffected.

A diagnosis of an acute condition of the abdomen was made, with the suggestion of strangulated internal hernia.

The Honorary Medical Officer was communicated with and preparations were made for an immediate operation.

Operation.

At midnight ether was administered by the open method and the patient was examined carefully. There was general rigidity over the whole abdomen and marked in the right iliac fossa. Dulness in both flanks and the lower hypogastrium was again noted.

A right lateral rectus incision was decided upon and the abdomen opened in the usual manner. Fully 200 c.cm. of blood-stained serous fluid escaped from the peritoneal wound and coils of distended bowel came to the surface. These were traced downwards and fully 75 cm. of semi-gangrenous reddish-black small gut were found. The portion involved extended from 5 cm. from the ileo-caecal junction upwards along the ileum for 75 cm..

Passing across from the anterior and medial side of the caecum and connected with the parietal peritoneum was a dense adhesion spreading to the posterior wall of the abdomen near the left sacro-iliac synchrondrosis, completely strangulating the whole loop of semi-gangrenous ileum. The loop had turned laterally to the right on itself, constituting the torsion. The band of adhesion was cut through and the incarcerated gut freed. Very soon afterwards the colour of the affected loop underwent an improvement, becoming more red and less black. The odour of the loop resembled that found in a *Bacillus coli communis* infection. Some time was spent deciding whether to resect the 75 cm. of affected gut or not. Meanwhile hot saline pads were kept applied to it and within a short time it was thought sufficiently improved in colour to warrant complete reduction into the abdomen. Although still fairly dark-coloured it had not lost its lustre. The abdomen was closed and drained. The pulse during operation was strong and of good tension, but became more rapid in the later stages, the rate reaching 144 per minute at the end of the operation.

Two pints of saline solution were given subcutaneously when the patient was returned to the ward and in the early morning a high turpentine enema, the result of which was a blood-stained return with very little stool. Adrenalin, brandy and digitaline were given alternately every two hours and the patient lingered till 11 o'clock that night. Then, in spite of all efforts, he succumbed.

Post Mortem Findings and Conclusions.

The section of affected gut was found *post mortem* to have partly recovered, with portions here and there, however, completely gangrenous.

A very similar case was reported in THE MEDICAL JOURNAL OF AUSTRALIA of July 30, 1921, by Dr. L. O. Betts, of Adelaide, also entitled "Torsion of the Small Intestine."

1. Apparently something like Dr. Betts's case, a long hanging loop of gut must have been cut off from the rest by the growth of a post-operative appendiceal adhesion. Peristalsis of the bowel might then explain the lateral torsion. Obstruction to the circulation, with or without toxic absorption, would then account for the semi-gangrenous state of the loop. The unfortunate stumbling on the previous day might have caused complete stoppage of the circulation to the loop.

2. Freeing of the adhesion at operation undoubtedly restored the damaged circulation to a very large degree. It was impossible to determine whether complete restoration of the vitality of the bowel would ensue, but, owing to the condition of the patient, it was thought unwise to submit him to the further shock of the resection of so large a portion of bowel as would have been necessary.

3. Of special interest in this case, as also in that of Dr. Betts, was the remarkable stability of the vasomotor system, as evidenced by the comparatively normal temperature and pulse rate no less than twenty-one hours after the first onset of the severe symptoms of the attack, in spite of the intense cardio-vascular shock which must have been experienced.

4. The amount of bowel involved was very considerable and the consequent result very acute and very rapidly progressive.

5. In contrast to Dr. Betts's case, the definite adhesion found was clearly responsible for the condition, which was primarily due to a previous lesion of appendicitis and subsequent appendicectomy.

A CASE OF GLIOMA OF THE OPTIC NERVE.[1]

BY J. LOCKHART GIBSON, M.D. (EDIN.),
Honorary Consulting Ophthalmologist, Hospital for Sick Children, Brisbane.

G.D., a girl aged eight years, was brought to me by her mother on June 7, 1921. The history was that for three months or more the child had known that something was wrong with her right eye and she had been noticed to put her hand up to it. Shortly before I saw her, a doctor doing medical school inspection had reported that the child should be taken to an oculist because the right eye was blind. The mother, instead, took her to an optician. The optician, after looking at the eyes for the purpose of giving spectacles, was asked by the mother whether she ought to take the child to a doctor. "Quite unnecessary," he said, "we see many such cases." The mother was not satisfied and brought her to see me.

I diagnosed a glioma of the retina in an advanced stage. I say advanced, because, in addition to the glioma reflex being very far forward in the vitreous chamber, the anterior chamber was shallow, there was evidence of a low grade iritis and there was increased intra-ocular tension. I explained to the parents that the eye contained a cancerous growth and emphasized the danger of delay. The eye was removed next day. It was found to contain a large glioma growing from the optic nerve forwards and close behind the lens and sending branches outwards towards the retina. There were some fluid remains of vitreous containing inflammatory cells. A portion of one of the branches was snipped off and Dr. J. V. J. Duhig found it to be microscopically a glioma in an advanced stage. There appeared to be no extension into the orbit, but it is quite a question whether I should not have played for greater safety by thoroughly clearing out the orbit.

I bring forward the case for two reasons: Firstly, because the glioma was growing from the optic nerve, as it did in the two eyes of an infant I showed here before, instead of, as it nearly always does, from the retina; and, secondly and chiefly, because it demonstrates the danger to the public of a government registering opticians to do any kind of medical work. Had the opinion of this optician been accepted, it would have meant the death of the child.

We cannot, of course, blame the optician for not knowing that the eye was in a serious state and a danger to the child, because an optician, however expert in the grinding of lenses and preparation of spectacles, could not possibly have any opinion of value on the real state of an eye. Prior to the registration of opticians as sight-testers, the blame would have rested on the parents of the child, had they been satisfied with the optician's opinion. It is impossible to avoid the belief that the blame now would have rested on the government which registered him. This is, of course, a particularly glaring case involving life. No doubt the optician in his ignorance assumed the eye to be amblyopic from disuse. I find that some opticians are more alive to their limitations than others and when they note anything that does not appear to be plain sailing, they advise that an oculist be consulted. If opticians were all careful to do this, their danger to the public would be minimized. An optician cannot, of course, be penalized for not knowing when an eye is diseased, because, without a very complete medical training, he could not know this.

Opticians in Queensland have been placed in a false position. Were chemists to be registered to prescribe medicines, they would be placed in an exactly parallel position and one which the whole profession would understand.

[1] Read at a meeting of the Queensland Branch of the British Medical Association on September 2, 1921.

Reviews.

THE HISTORY OF THE AUSTRALIAN IMPERIAL FORCE.

IT is doubtful if the publication of any book in this country has ever attracted so much attention as the appearance of the first volume of Australia's official history of the great war.[1]

The completed work aims at being far more than a mere compilation of what was done by the Australian Imperial Force abroad, as is shown by the full title, "The Official History of Australia in the War of 1914-1918," and Volume I. deals with "The Story of Anzac: The First Phase," taking the reader as far as the attack on Gaba Tepe on May 4, 1915.

The author, Captain C. E. W. Bean, was personally known to many Australians abroad. He was widely read by many Australians at home and it is certain that he will be read and known by many generations of future Australians through the medium of this, his *magnum opus*. As he sets out in his preface, he has had many advantages as a rule denied to official historians. He had free access to all records, to many private diaries and has held conversations with the actual actors in many of the scenes he describes. He was also able in 1919 to study Anzac from the Turkish side with the help of the Turkish General Staff. But, above all, as he says himself, he has "either on the day of battle or soon afterwards visited as far as it lay in him to do so, every important trench or position mentioned in this and the following five volumes."

With such unique information and opportunities a great history was expected and a very great one has been produced. The work entailed in preparation must have been immense, but the result is magnificent.

The volume at present under review opens with a *résumé* of Australia's military position in 1914 and leads up through the Australian offer of troops to the formation of the Australian Imperial Force and its voyage to Egypt and the training there. The world events which brought about the expedition to the Dardanelles, are fully described and the second half of the book deals in the fullest detail with the part played by the Australian troops in the landing at Anzac and the continual confused fighting from April 25 to May 4, 1915.

It is manifestly impossible to traverse a book of this extent within the confines of a short review and only some salient features can be indicated.

The style of the book marks a departure from that usually found in war histories. We have none of the deliberately vivid phraseology of Napier, the stately periods of Kinglake or the higher journalism of Steevens. In their place there is an accurate simplicity and truthfulness which is always convincing and frequently most arresting. To quote but one example: the description of the conferences regarding a withdrawal on the first night (pages 453 to 461) illustrate well how powerful and compelling the simple truth can be when shorn of all unecessary adornment. Captain Bean's account of the scene on the *Queen Elizabeth* on that occasion is even more living and vivid than that given by Hamilton himself in his "Gallipoli Diary" and yet the Commander-in-Chief was there while the war correspondent was not.

Captain Bean is particularly happy in his pen portraits of the leaders, such as Bridges, White, Gellibrand, Howse, Ray Leane, to name but a few. His book is rich with these vignettes and they form a most interesting study and make the men themselves live in front of the reader. In addition, wherever an Australian or New Zealander is mentioned by name a short footnote gives a few biographical details regarding him.

The accuracy of detail in small matters of description is extraordinary and is best illustrated by an example taken at random: "In their trenches high up the green slope the Turks had three machine guns and an automatic gun firing a one-inch shell. Lieutenant Rockliff was hit and the other officer of Leane's party, Lieutenant H. B. Thompson, one of a number whose promotion from sergeant had been authorized the night before, though he had not actually heard of that fact, was killed. About a dozen were killed or wounded in the boats. The rest rushed through the shallow water and across fifteen yards of beach to the shelter of the bank which bordered the shore."

With regard to the medical side, it is impossible to describe fully the whole activities of the Australian Army Medical Corps in a work of this nature. Many references are made to individual medical officers and personnel and Chapter XXV. is devoted to "the clearing of the wounded." This chapter is written with great restraint and in parts makes very sad reading. The reason for the "complete breakdown of those partial and hurried arrangements . . . made at the last moments for receiving" the wounded from the shore, is made abundantly clear. It lay in the fact that while the "operations" branch of General Headquarters was in the *Queen Elizabeth* with full information and control, the "administrative" branch was cooped up in the *Arcadian*, where they could neither see nor hear what was taking place, "where they had not even the right, except as an act of grace on the part of the ship's authorities, to send wireless messages." The responsibility for the muddle did not rest in Australian hands.

A deservedly high tribute is paid to the work of the stretcher-bearers. "Wherever the infantry went, they went." "From the first day they endeavoured to evacuate wounded from the line, as it lay fighting . . . and that standard of action was never lowered during the war." "It was from the first an unvarying point of honour with Australian stretcher-bearers that, whenever and wherever the call 'Stretcher-bearers!' was heard, they must go out to it." This opinion will be echoed by every medical officer who had the honour to be associated with stretcher-bearers during the course of his duties.

A fine set of illustrations and maps is provided and a most useful set of sketch maps is incorporated in the text explanatory of the operations described. The book is well printed and of a handy size and can be summed up as a most interesting and valuable work.

[1] "The Official History of Australia in the War of 1914-1918: Volume I., The Story of Anzac from the Outbreak of War to the End of the First Phase of the Gallipoli Campaign, May 4, 1915," by C. E. W. Bean; 1921. Sydney: Angus & Robertson, Limited; Demy 8vo., pp. 660, with 111 maps and 56 illustrations. Price: 21s. net.

LIFE INSURANCE EXAMINATION.

As a rule, one is justified in saying that there are too many books written, or being produced, on any one given medical subject. This, we venture to think, is not true as regards the literature of the subject of Dr. Lister's sensible little monograph.[1] In our judgement, the most complete treatise on the subject in the English language is that written a good many years ago by Dr. Greene, of St. Paul, U.S.A.. An admirable work, now becoming somewhat out of date and with one great defect—it is too long and too much of it is devoted to clinical signs and methods. In short, it becomes somewhat of an incomplete and inefficient text-book of medicine. If medical examiners have not already learned the ground work of their profession, they have no business to be medical referees for insurance companies.

Dr. Lister's book avoids this misdirection of energy. It does not deal with insurance practice as a "special" branch of medicine. Nor "does it attempt to teach physical signs." Such faults as it has are rather those of omission. We think the author might with great usefulness have amplified in many places his views on various debatable subjects and with his evident ripe experience laid down more definite pronouncements on the rating up of certain substandard lives. It is, however, a work which will be of great use to those who are only called upon occasionally to examine proponents and, on the whole, it is well adapted to their needs.

It is a small matter, but it would have been better if the author in various instances could have found some other word to express his meaning. For instance, there

[1] "Medical Examination for Life Insurance," by Thomas D. Lister, C.B.E., M.D., F.R.C.S., M.R.C.P.; 1921. London: Edward Arnold & Co.; Demy 8vo., pp. 168, with diagram. Price: 10s. 6d. net.

is the expression declension, by which Dr. Lister means the refusal of the risk. It is true that that word may be so used, but it is not to be recommended. "Phthinoid" is another awkward word used more than once which might have been expressed better. However, these are small matters; the book, as a whole, is excellent and sane. It does not try to do too much and it is eminently helpful; but let no one suppose that it is in any sense a complete handbook of insurance practice. It does not claim to be so.

It would be impossible in a brief review to go into an examination of all Dr. Lister's statements where one may legitimately differ, but, as a rule, we believe that those most competent to judge will agree that his advice is nearly always excellent, although, we again point out, sometimes somewhat incomplete. Take empyema! An empyema which is clearly the aftermath of pneumonia or some definite septic disorder, has not the same sinister effect on assessment as if it came on as an end condition of a so-called idiopathic pleurisy with effusion; but the distinction is not brought out by Dr. Lister and might easily escape a less experienced examiner. A fuller discussion on glycosuria would have been acceptable. No distinction is drawn between the sugar tolerances of early and later years.

"Nipping" could have been dealt with more extensively. No mention is made of the "sign of Quinquaud," a small test which possesses a greater value than apparently the profession attach to it. Dr. Lister rightly says that alcoholism is a condition that admits of no definite assessment.

Dr. Lister might have allowed himself to pronounce definitely on the assessment of proponents under 40 years whose personal record was perfect, but in whose family one or more deaths from pulmonary tuberculosis is recorded; and this lack of definiteness applies to other constitutional maladies.

The value of blood pressure records is properly appraised without undue laudation in cases where its estimation is of real value and not a vain fetish. He gives as a rough guide that it should be equal to the age of the proponent, *plus* 100 mm. Hg., which is not far out.

His remarks on otorrhœa, gastro-enterostomy and the examination of pulse are excellent.

Altogether, this work, limited in scope as it is, can be cordially recommended to all whose duty it is to examine candidates for life insurance as a safe, sensible and correct guide and we may add it will be found of value in the libraries of all insurance companies.

THE DEVELOPMENT OF THE NOSE.

A MONOGRAPH presenting the fruits of the author's personal studies and observations during a period of thirteen years of the genesis, development and anatomy of the human nose and its related parts is presented by J. Parsons Schaeffer.[1] This is a very comprehensive treatise and displays evidence on every page of the devoted labours involved in the research.

A discussion of the general embryology and development is followed by a detailed description of the definitive nose. Then follow chapters devoted successively to the maxillary, the frontal and the sphenoidal sinuses, the ethmoidal cells, the naso-lachrymal passage-ways and the nasal mucous membrane. Chapters are also allowed for the consideration of the blood- and lymph-vascular supplies, the common sensory and sympathetic nerves and the olfactory apparatus proper. The general physiology of the organ is outlined in the concluding chapter.

This volume will be valuable for reference to the anatomist, the general surgeon and particularly the rhinologist.

In the case of each structure, the fœtal, childhood and adult stages are carefully described, comparative measurements given and the variations from the more usual type referred to. The illustrations are new and numerous and for the most part are based on preparations, reconstructions and dissections by the author. They are clear, apposite and well set out, a few being in colour.

There are concluding considerations with each chapter, but many of the conclusions are assumed tentatively from established and related facts and clinical evidence in hand and are by no means meant to be taken as final. An immense amount of material necessarily required in tracing the development of the various structures through all the stages of their growth was difficult or impossible to secure, but great assistance was obtained by the study of other mammalian embryos.

The subject matter of the book is conveniently arranged, well indexed, printed on heavy glazed paper and strongly bound. No attempt has been made, unfortunately, to include a review of the literature of the subject, which would have enhanced its value. However, the author states he has had to omit much to keep within the limits he has allowed himself.

[1] "The Nose, Paranasal Sinuses, Nasolacrimal Passage-Ways and Olfactory Organ in Man: A Genetic, Developmental and Anatomico-Physiological Consideration," by J. Parsons Schaeffer, A.M., M.D., Ph.D.; 1920. Philadelphia: P. Blakiston's Son & Company; Demy 8vo., pp. 370, with 204 illustrations, of which eighteen are printed in colour. Price: $10.00 net.

Lunacy Service.

THE INSANE IN NEW SOUTH WALES.

As has been pointed out on several occasions during the past twelve months, the necessity of curtailing the number of pages in each issue of THE MEDICAL JOURNAL OF AUSTRALIA prior to October, 1921, has resulted in a considerable accumulation of valuable material. The report of the Inspector-General of Mental Hospitals of New South Wales, covering a period of eighteen months to June 30, 1920, has been in our hands for a considerable time. Dr. Sinclair has extended the period of his report in order to conform with the new regulations providing for all departmental reports to cover a financial and not a calendar year.

Statistical.

On the last day of December, 1919, the total number of insane persons under official cognizance was 7,595. Of these, 479 were on leave, 51 were in hospitals in South Australia, 104 were in licensed houses and the remainder were in the public mental hospitals. During the previous nineteen years there has been an annual increment of certified insane persons averaging 161.31, while in 1919 there was an actual decrease of 66.

The number of admissions during the year 1919 was 1,484. Of these, 1,286 persons were admitted for the first time. The "occurring insanity," which means the proportion of persons admitted to the mental hospitals to the general population, was 1 in 1,348. The variations in the occurring insanity have been considerably less since the year 1910 than during the previous ten years. In the period 1910 to 1919 the lowest occurring insanity was 1 in 1,466 in 1912 and the highest 1 in 1,295 in 1916. For the period 1899 to 1909 the lowest was 1 in 1,704 in 1899 and the highest 1 in 1,344 in 1903. In his supplementary report Dr. Sinclair points out that the increase in the operations of the Department does not necessarily indicate that the incidence of insanity in the community as a whole is on the increase.

The number of persons discharged "recovered" was 555. This represents 37.39% of the number of persons admitted and readmitted during the year. The question of the validity of the use of the word recovery in this connexion has been discussed on many occasions in these columns. Dr. Sinclair and all other authorities on psychiatry use the term to indicate recovery from the attack or its manifestations rather than recovery from the often unknown physical or functional defect underlying the disease. It will be noted that, of the persons admitted during the year, 13.2% had previously been in a mental hospital and presumably had been discharged under the rubric "recovered." The recovery rate is 0.56% above that of the previous year and 2.05% below that of the average for the past ten years.

In addition to 464 patients on leave on the first day of the year, 931 patients were discharged on probation or granted leave during the year. Of the total 1,395 patients,

418 were discharged, 457 were returned to hospital and 23 died.

The number of deaths during the year was 798. This represents 11.17% of the average number of patients resident in the mental hospitals. The mortality was slightly higher than in the previous year. Just under one-third of the deaths was due to definite disease of the brain. In 104 instances it was due to general paralysis of the insane, in 55 to inflammation and other gross lesions of the brain, in 48 to maniacal and melancholic exhaustion, in 30 to epilepsy and convulsions and in 23 to apoplexy and paralysis. Influenza accounted for 180 deaths, while diseases of the heart and blood vessels (excluding cerebral hæmorrhage) accounted for 104. There were 68 deaths from pulmonary tuberculosis and only 30 from pneumonia, pleurisy and bronchitis.

During the course of the year 52 patients escaped. These patients were followed immediately and 43 were retaken; the remaining nine are stated to belong to a not dangerous class. Dr. Sinclair points out that the majority of those who escaped, are in the convalescent stages of the disease and that as much liberty as is compatible with safety is allowed them as a means of effecting a recovery and adding to the well-being of the patients.

It appears that 36 accidents to patients occurred during the year. Of these, seven were fatal. One patient was struck with a spade by another patient; one patient strangled herself with a sheet; three patients committed suicide while on leave of absence. There were two patients who died from injuries received prior to admission.

The Mental Hospitals.

The largest of the nine mental hospitals in the State is at Parramatta. There is accommodation for 1,265 patients. In the Gladesville Hospital there is accommodation for 952 patients, at Callan Park for 911, at Kenmore for 872 and at Rydalmere for 843. The other institutions are considerably smaller. With the exception of the Parramatta and Stockton Mental Hospitals, the number of patients actually in these hospitals was in excess of the permanent accommodation. At the end of the year there were no less than 6,957 patients in nine hospitals which were supposed to accommodate 6,229. Sanction has been given for the erection of a new mental hospital at Orange. Unfortunately, the Treasurer has decided that no funds can be made available at present. Dr. Sinclair states that, unless further accommodation can be provided at an early date, a position will be reached which would make it necessary to discharge patients sooner than they should be discharged to make room for new patients awaiting admission. In the supplementary report he adds that there must be a certain loss of efficiency while this state of affairs is allowed to continue.

There is at Darlinghurst, situated in the same grounds as the Reception House, an institution called the Mental Ward for the treatment of patients with incipient mental disorder or with conditions amenable to treatment without the necessity of enforced detention. The patients in the Mental Ward are allowed to remain there during the whole course of their illness. Alcoholics are not transferred to a mental hospital, as they can be more readily managed in this small institution. It is, in effect, a psychiatric clinic, such as might with advantage be instituted in the large metropolitan hospitals. The system of admitting patients at their own request at Darlinghurst has proved so successful that, during the last few years, it has been extended to the ordinary mental hospitals. Dr. Sinclair hopes that, as this system becomes more popular, the public at large will soon recognize that mental hospitals are curative institutions and not merely houses of detention.

During the course of the year 1919 96 patients were admitted to the Mental Ward at Darlinghurst. There were 13 patients in the wards on the first day of the year; the number of those discharged was 92. One patient died.

There are three reception houses in the State. The one is situated at Darlinghurst, the second at Newcastle and the third at Kenmore. During the year 1,698 persons were admitted to these institutions: 1,567 at Darlinghurst, 119 at Newcastle and 12 at Kenmore. The majority of the patients are brought to the reception houses by the police and dealt with in the police court. A few are sent under lunacy certification. Some of the patients are kept for short periods in these institutions prior to discharge or to transfer to hospitals or to licensed houses. The number of those discharged within the year was 658.

The Hospital for the Criminal Insane is attached to the Mental Hospital at Parramatta. The Inspector-General points out that the institution is of insufficient size and is out of date. It is intended to utilize the Parramatta Gaol for the housing of the criminal insane. With structural alterations and other modifications this building may be rendered suitable for the purpose. The number of persons in the Hospital for the Criminal Insane on the last day of 1919 was 38, being 36 males and two females. Fifteen committed crimes of murder, manslaughter, etc., six committed assaults and seven committed sexual offences. Nine had been charged with offences against property and one with false pretences. Fourteen of the patients had been certified as insane while serving their sentences.

At the Observation Ward of the State Penitentiary at Long Bay there is provision for the treatment and observation of prisoners in gaols who are found to have become insane. In many cases these persons improve under treatment and can be returned to gaol discipline. The total number of persons received in these wards during the year was 45, while eight others were under observation on the first day of the year. Of the 53 patients, eight were found to be of sound mind, nine were sent to mental hospitals, 24 were sent to the Reception House and six were sent to the police courts.

An arrangement is in existence between the States of New South Wales and South Australia for the accommodation of insane persons from Broken Hill in the mental hospitals of South Australia. The number of persons admitted year by year in this manner varies from four to sixteen. In 1919 there were twelve. The total number of Broken Hill patients at Parkside in 1919 was 59.

Form of Mental Disease.

The Inspector-General publishes, as usual, the apparent or assigned causes of insanity in the persons admitted or re-admitted to the mental hospitals during 1919. The table is compiled along orthodox lines and is not discussed in the report. It would, in our opinion, add to the value of these excellent annual documents if the details presented in this tabular form could be amplified and if an attempt were made to correlate the apparent causes with the clinical manifestations and with the pathological findings. The causes are divided into predisposing and exciting. Each is again subdivided into moral and physical. In regard to predisposing causes, inheritance, congenital defects and previous attacks are entered separately. It is possible that in the cases in which the predisposing cause is given as previous attacks, another predisposing cause and an exciting cause may have been ascertainable at the time of the first attack. It would be reasonable to assume that the predisposing cause would be the same in the first as in all subsequent attacks and it is not impossible that a similar exciting cause may have determined each successive relapse. Previous attacks were recorded in 205 cases. The next most prominent predisposing cause was ascertained congenital defect. This occurred in 154 instances. Much interesting and valuable information could probably be given in regard to the exact nature of these defects. The third predisposing cause in order of frequency was hereditary influence. Exception might be taken to the inclusion of old age as a predisposing cause of insanity. It appears in the table with the number 117 attached. Of the moral causes, mental anxiety, worry and overwork is stated to have laid the foundation for insanity in 17 persons. The other moral causes were domestic trouble, adverse circumstances, religious excitement, fright and nervous shock and isolation. Among the physical predisposing causes, epilepsy appears to be the most frequent single cause, although a group of bodily diseases and disorders and chronic ill-health appears opposite a larger number. It is somewhat surprising to learn that intemperance in drink appeared as a predisposing cause only seven times and that venereal disease acted only nine times.

Among the exciting causes, intemperance in drink heads the list as being active in 137 instances. In 100 patients venereal disease was the exciting cause, in 59 it was mental

anxiety and worry, in 40 it was epilepsy and in 33 parturition and the puerperal state.

A table is given showing the length of residence in the mental hospitals of those who recovered and also of those who died during the year 1919. Recovery appears to have been most frequent after from three months' to two years' residence. It occurred 34 times in patients who had been three years in hospital, 21 times in those who had been in hospital between three and five years and 15 times in those who had been in hospital between five and seven years. Thereafter, recovery became less and less frequent, although it actually occurred in one patient, a female, after over fifteen years' incarceration.

Much important data is included in tables dealing with the ages of the patients admitted, of the form of the mental disorder, with their occupation, with their condition as to marriage and with their country of origin. No attempt, however, is made to co-ordinate the information contained in these several tables.

Proposed Amendment of Legislation.

The Inspector-General states that a Bill has been drafted for the amendment of the present *Lunacy Act*, to bring it into line with the laws of more advanced countries. It is hoped that Parliament may sanction these amendments at an early date.

Inebriates.

Under the provisions of the *Inebriates Act of 1912*, the Inspector-General of Mental Hospitals is given control over inebriates other than those who have brought themselves within the pale of the law. No special institution exists for the departmental care of inebriates. The Comptroller-General of Prisons has set aside an establishment for the treatment of inebriate men and women who may apply voluntarily for admission. The accommodation is very limited. A large institution is required to carry out the intention of the legislators. In a few instances orders are issued to enable owners of private hospitals and others to assume the control of inebriates.

THE BRITISH ASSOCIATION OF RADIOLOGY AND PHYSIOTHERAPY.

THE annual meeting of the British Association of Radiology and Physiotherapy was held in London on September 30, 1921. An announcement was made that the Association, which was founded nearly four years ago, had secured a certificate of incorporation.

Dr. B. Robert Knox, the President, reviewed the work of the Association since its inception. In 1914 there was an Electro-Therapeutic Section of the Royal Society of Medicine and the Röntgen Society of London, but those practising as radiologists and physio-therapists in London found themselves without any organization capable of taking corporate action. The first act of the British Association of Radiology and Physiotherapy was to approach the University of Cambridge with a view to the establishment of a diploma in medical radiology and electrology. The Senate of the University had not only granted this request, but had extended recognition to the Association as a school of instruction qualifying candidates for admission to the examination for the diploma.

In conjunction with the Institution of Electrical Engineers, the Association took up the question of the training of lay assistants in the X-ray and electrical departments. Arising from this the Society of Radiographers was founded. This Society secured the approval of the Board of Trade and of the General Medical Council and a diploma of membership is now granted after examination. The members undertake not to accept patients for diagnosis or treatment, except under the direction of a qualified medical man.

The Association has issued from time to time authoritative statements on the subjects with which it concerns itself in the lay press. These statements are unsigned and emanate from the Council of the Association and consequently they are free from all suggestion of personal bias.

Dr. Knox appealed for the support of all medical practitioners interested in radiology and electro-therapeutics, so that the Association might develope rapidly and carry out its functions to the advantage of all concerned. He also expressed a hope that branches of the Association would be formed in all parts of the British Empire. Membership of the British Association for the Advancement of Radiology and Physiotherapy carries with it the reception of the official organ, *The Archives of Radiology and Electro-therapeutics*.

Public Health.

THE PLAGUE OUTBREAK.

THE DEPARTMENT OF HEALTH OF THE COMMONWEALTH has issued two issues of the plague bulletin since the last summary was published in this journal. Bulletin No. 23 is dated December 23, 1921, and Bulletin No. 24 December 30, 1921.

Plague in Man.

During the fortnight ended December 24, 1921, four further infections in human beings were notified in Brisbane. Three other patients were admitted to hospital on account of suspicious symptoms. The total number of cases notified up to December 24, 1921, in Brisbane was 39, of which 25 had proved fatal. On December 25 a further notification was received. The patient was a girl, aged three years, who lived in South Brisbane. She was admitted on December 25 and died on the same day. Two other patients were admitted on December 28 and 29, 1921. In the first the diagnosis was definite, while plague was suspected in the second.

No further patients were admitted to hospital in Townsville during the fortnight ended December 24, 1921. It appears that the diagnosis of plague which had been suspected in a patient previously admitted to hospital, was confirmed by bacteriological examination.

Similarly, while no fresh infection in human beings was notified in Cairns during the fortnight, the suspected nature of the infection in a patient previously admitted was confirmed.

A boy, aged fourteen years, was admitted to the isolation hospital in Brisbane from Ipswich on December 13, 1921, on account of suspicious symptoms. The diagnosis of plague was confirmed and the patient died on December 14, 1921.

Plague in Rodents and Cats.

During the fortnight ended December 24, 1921, 3,747 rodents were examined in Brisbane and eight were found to be infected. In addition, twenty-two cats were examined; only one was infected. Only one infected rat was found in Brisbane between December 24 and 29, 1921.

Dr. A. Breinl examined between December 8 and December 21 smears from 28 rats caught in Townsville. No plague bacilli were found. Two infected rodents were found in Cairns during the fortnight ended December 23, 1921, while at Ingham, in the Hinchinbrook Shire, five infected rodents out of a total of 695 examined were discovered.

Rodents caught and examined at the laboratories of the New South Wales Department of Public Health between December 12 and 28 aggregated 1,711, of which twelve were found to be infected.

The trapping and catching of rodents proceeds in South Australia, Victoria, Tasmania and Western Australia. No infected animals have been discovered.

General.

It has been determined that luggers leaving Thursday Island and proceeding to Papua without touching any other Queensland port need not undergo medical inspection as long as Thursday Island remains free from plague.

Instructions are issued in regard to the methods of collecting fleas from rodents. These instructions have been forwarded to the Chief Quarantine Officer in each Division. The collection and examination of fleas have been initiated as a result of a resolution of the Plague Conference held in November, 1921.

Arrangements have been made whereby the supervision of goods traffic by rail from Sydney shall be under the direction of the New South Wales Department of Public Health within the State and of the Commonwealth Department of Health at the inter-State borders.

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A Retrospect.

Medicine.

THE task of selecting from the immense accumulation of literature on medicine proper those contributions that represent the real advancement of knowledge is a difficult and hazardous one. Writers on these subjects have been very prolific during the year 1921. Many hypotheses have been formulated; some have lived for a day; some have gained some credence for a time, but have ultimately been discarded; a very few have emerged unscathed from the cross fire of criticism.

The subject of cardiac disease has provoked much earnest work. Thomas Lewis has put forward a very ingenious explanation for the immediate cause of auricular flutter. Basing his investigations on the phenomena first described over a dozen years ago by Mayer involved in the well-known "ring experiment" with muscular tissue, Lewis has sought an analogy in the contraction waves of the *venæ cavæ* in auricular flutter. He was able to determine the presence of two waves passing in circulation around the same path from the inferior *vena cava* through the *tænia terminalis*, around the superior *vena cava*, to the auricular appendix. After careful analysis of these waves, he devised the doctrine of "circus movement." The hypothesis is not only plausible; it serves well as a working basis and has been found to satisfy all the conditions applied to the clinical manifestations of auricular flutter. Thomas Lewis has further added to our knowledge of the mechanism and clinical significance of auricular fibrillation.

In connexion with this branch of medical science mention should be made of a preliminary note that has been published in these columns in December by Norman W. Markwell on the clinical manifestations of reserve of the heart muscle. It is impossible at present to judge the soundness of his views; further study and control must reveal whether or not the main thesis is in conformity with fact. There is, however, one important phenomenon that he has brought to light. By prolonged and deliberate training of the sense of hearing, it is possible to differentiate the integral parts of the cardiac sounds and to recognize the complex nature of these sounds. It would seem as if the physician of the future may find that he possesses in his own five senses instruments of greater precision and more delicate adjustment than any artificial apparatus planned on recognized physical laws.

F. W. Allen has delivered further instalments of his contribution to the study of the relation of the pancreas to diabetes. In some respects the work is too incomplete to justify to the full some of the deductions he has drawn. Allen found that dogs rendered glycosuric by the removal of a portion of the pancreas manifested signs of asthenia. These animals often became prostrated before the glycosuria or acidosis developed. The asthenia was at times noted after a chronic inflammatory reaction had developed in the pancreatic remnant. By a process of exclusion, Allen arrives at the conclusion that the asthenia is produced by an endocrine deficiency. A similar mechanism is supposed to exist in connexion with the superficial infections and ulcerations which are frequently noted in partially depancreatized dogs and human diabetics. Some interesting work has been carried out in regard to the condition known as renal glycosuria. Allen would trace the sugar appearing in the urine in the absence of hyperglycæmia to carbo-hydrate derived from protein. The evidence in support of this supposition has been challenged.

A steady stream of information has flowed from the best organized source of medical investigation in the United Kingdom, the Medical Research Council. During the year a few reports on medical subjects have appeared. Among them that on experimental rickets by E. Mellanby is worthy of special mention. Mellanby has found that the conditions inhibiting calcification or increasing growth without a corresponding increase in calcification are a deficiency of calcium and phosphorus in the diet, a deficiency of the anti-rhachitic food factor, excess of carbo-hydrates, absence of meat, excess of the protein moiety of caseinogen and confinement. He is not prepared to elaborate a simple hypothesis to

account for the development of rickets, but merely relies on the statement that the condition occurs when the diet is deficient in the anti-rhachitic food factor *et cetera* and too rich in other elements. A properly fed child does not become rhachitic when confined to the house without exercise, but a child whose diet is faulty, is more likely to suffer if it does not get ample exercise in the open air.

The discoveries and extended knowledge of past years in connexion with hookworm disease and bilharziosis have been applied on a large scale during the year. Many important communications have been published by members of the International Health Board of the Rockefeller Foundation on hookworm. In Australia W. A. Sawyer has given an admirable account of the history of the disease since its presence in Queensland was first discovered thirty-two years ago. He has also summarized the findings of the Australian Hookworm Campaign. Following the researches of Hamilton Fairley on complement fixation by the serum of persons suffering from bilharziosis and the therapeutic employment of tartar emetic by J. B. Christopherson, Walter Summons, H. Irving, K. Stuart Crosse, C. Gordon Shaw and H. K. Pavy have recorded the results of their extended observations.

Some important investigations have been carried out by the members of the Broken Hill Technical Commission of Inquiry into the incidence, pathology and sociological significance of pneumonokoniosis and of pulmonary tuberculosis associated with the fibrosis of miner's lungs. The Commission further have made a valuable contribution to our knowledge concerning the effect of lead in the organism. The final report of the Commission is about to appear and will certainly stand as one of the standard works on these two subjects. It is recognized that the conditions in the Broken Hill mines in regard to the effect of the dust on the lungs and general health of the miners are peculiar and in some particulars do not correspond with the conditions in other parts of the world. The New South Wales Board of Trade has issued a valuable report on the use of white lead in the painting industry. This subject has been exhaustively treated in our columns.

There have been numerous other contributions dealing with other diseases, including asthma, diphtheria, sprue, nephritis, infective jaundice and encephalitis, of considerable practical importance. It is impossible to refer to them individually in the space available.

Surgery.

During the course of the year under review the amount of literature on surgical subjects has been almost overwhelming. Much of the work has been of good quality, but little new ground has been broken and no great event marks the steady progress of the year. In Australia many surgeons of repute have turned their attention to the subject of the treatment of gastric and duodenal ulcers. There has of late years been an increasing tendency to restrict the performance of gastro-enterostomy to special cases or to combine it with other operative methods of treatment. Evidence has been collected of the failure of gastro-enterostomy to bring about a healing of the gastric ulcer or even an alleviation of the patient's sufferings. H. B. Devine contributed early in the year an article read at the Brisbane Congress, in the course of which he standardizes the surgical treatment of duodenal and gastric ulcers. He describes his own operation of partial gastrectomy in clear terms and recommends it for ulcers situated in the portion of the stomach proximal to the middle of the organ. He has further found that, by using a special technique, large, late, doubtfully operable, penetrating and adherent ulcers can usually be removed with good results. Mr. Devine's work has attracted much attention and his teaching is regarded as sound. The articles on the surgical treatment of perforation of gastric ulcers by John L. McKelvey and Howard Bullock may be consulted to ascertain the present views on this subject. J. B. Deaver, in America, has dealt exhaustively with the surgery of gastric and duodenal ulcers. His views coincide more or less with those of Devine.

In connexion with gastric and duodenal ulcers, Hurst has continued the investigations started on the basis of the now classical work of Bolton. He has shown that the stomach belongs either to the hypertonic or to the hypotonic type. The tendency in persons with hypertonic stomachs is for the food to pass rapidly into the intestine. These persons suffer from hyperacidity. Duodenal ulcers form when the type is definite and when the hyperacidity is high. In the stomachs of the second type empty-

ing takes place more slowly and ulcers form near the lesser curvatures as the result of stasis. It is now generally admitted that infection plays an important part in the development of gastric ulcers. At times the infection is grafted on a mucous membrane damaged or irritated by silk sutures, hot foods and alimentary irritants. It is held by some observers that the primary lesion in some ulcers of the stomach is a syphilitic arteritis.

Closely associated with the subject of gastric ulcer is that of pyloric stenosis. Some important work has been undertaken by Charles Pannett with the view to discover the effect of linear division of the pyloric sphincter. He found that simple incision of the muscle in the long axis of the stomach, provided that the mucosa remains intact, results in an increased rate of emptying of the contents of the stomach into the duodenum. In the experiments conducted on cats the risk of rupture of the thin mucous membrane was reduced by the suturing of a curtain of omentum to bridge the gap in the muscle. The method of healing was studied. From these observations it is doubtful whether the degree of patency of the pyloric opening can be regulated with accuracy. It is probable that the deliberate division of the pyloric sphincter for pyloric stenosis and even for pylorospasm may be carried out with good functional results.

Sound surgery has its foundations in the doctrines of physiology. At times surgical practical is built up on the half truths divulged by incompleted physiological research. For several years it has been the mode with certain impatient practitioners to anticipate the physiologists by constructing a group of hypotheses on the disorders of the ductless glands under the fine-sounding term of endocrinology. While our knowledge concerning the physics and chemistry of these glands is so imperfect, small reliance can be placed on the alleged signs and symptoms of pathological lesions of the different tissues of these structures. The attempt to graft on this insecure foundation a special branch of surgery appears to be somewhat speculative. The progress registered in the surgery of the pituitary gland, however, is interesting and may prove to be of importance. The literature contains an ever-increasing number of records of attempts to remove growths and cysts in the *sella turcica*. The diagnosis of these lesions is becoming more reliable with the aid of the skiagram. In England the approach usually followed is through the frontal bone and along the orbital roof. Walton claims that this path offers many advantages over all others. On the other hand, Cushing prefers the temporal route. In Australia the trans-nasal operation has been performed with success. Similarly, some interesting attempts have been made to deal surgically with neoplasms of the hypophysis. William Duffy has contributed a record of three cases of varying pathological nature. T. H. R. Mathewson has recently published some highly instructive notes on the clinical manifestations of an illness dependent on a growth of a doubtful nature apparently arising from the neighbourhood of the hypophysis. Accurate descriptions of the signs and symptoms of the illness produced by these tumours may be expected to reveal a means of localization and group diagnosis.

Early in the year 1921 Sir Berkeley Moynihan published a masterly summary of the position of the surgery of the spleen. It is not claimed that the contents of this admirable essay embrace any new doctrine, nor that they finalize a discussion which has been in progress for several years. But the position is admirably and judiciously presented and the indications for splenectomy are set forth.

It is claimed by some leading American surgeons that splenectomy prolongs life in at least 20% of all cases of pernicious anæmia. Mayo holds that splenectomy associated with transfusion of blood offers the best chance for the patient. Moynihan is less optimistic. Removal of the spleen has not justified itself as a method of treatment of the leuchæmias, but it has apparently led to some strikingly good results in hæmolytic icterus and in splenic anæmia. An attempt has been made to discover a rationale of removal of the spleen in pernicious anæmia. Mayo suggests that some infection affects simultaneously the spleen, the bone marrow and the spinal cord. This noxious agent produces achlorhydria and glossitis. He further suggests that the symptoms and signs of the disease are dependent on a disturbance of the functions of the blood-forming organs and of the spinal cord. The exclusion of the spleen breaks down the vicious cycle. This hypothesis has not gained universal acceptance.

The subject of hydatid disease may be regarded as an Australian one. Some valuable contributions to our knowledge of the pathology and surgical treatment of hydatid cysts of the liver have been published during the year. C. E. Corlette has advocated the medical extirpation of calcified hydatid cysts from the liver, provided that great caution be exercised. Late in the year B. Kilvington has approached this subject and has advocated the evacuation of the fluid contents of the cyst and the scooping out of as much of the cyst wall, including the adventitia, as is possible. When he fears that small daughter cysts or scolices had been left behind, he applies a solution of formaldehyde.

Obstetrics.

The world has awakened to the fact that, notwithstanding the boon of aseptic midwifery, childbearing is still fraught with grave dangers to both mother and child. In his annual report for the year 1920 Sir George Newman gives some significant figures. The number of notifications of puerperal fever reached 2,898, a figure more than double that of 1917 or 1918. There were 1,730 deaths from this cause, which is equivalent to 0.046 per thousand of population. The mortality curve during the past fifty years reveals a highly unsatisfactory state of affairs. Between 1871 and 1900 the level remained around 0.07‰; it then fell to 0.05‰ and declined during the years 1915, 1916, 1917 and 1918 to 0.026‰. The cause of this increase or rather of the decrease during the years 1915 to 1918 was the smaller number of births. Assuming that the number of births corresponded to the number of labours, in 1920 no less than 1.8‰ of women in child-birth died of sepsis. The total maternal mortality was 4.12‰, which is the highest figure for fifteen years.

The story of the fate of the infants in England and Wales is still more appalling. It is true that the infantile mortality has fallen from 156 per thousand births to 80 in a quarter of a century, but the death-rate of infants under four weeks of age has scarcely fallen at all. Moreover, Sir George Newman finds that the still-births represent about 3% of the number of living infants. Taking these two sets of figures together, it would appear that of every hundred fœtuses reaching viable age, ten died either during the birth or within the first year of life. This problem has given obstetricians and hygienists much concern during the year just ended.

Ante-natal care of the pregnant woman has been developed to a considerable extent in all countries. In Australia the clamour for more and better facilities to safeguard the lives of women and their unborn babes has been insistent. In New South Wales Fourness Barrington has made this subject peculiarly his own and he has led the New South Wales Branch of the British Medical Association, of which he is the President, into an active and promising campaign.

A. Sherwin has spoken plainly and directly on the evil practice of the promiscuous performance of Cæsarean section without proper indications. In an admirable paper read before the Gynæcological and Obstetrical Society of Melbourne he has issued a warning on the basis of the experience in Queen Charlotte's Hospital in London and in the Women's Hospital in Melbourne against the misuse of operative delivery, when induction of labour and conservative midwifery yield far better results. This article will appear in an early issue of this journal.

A daring proposal was made by Margaret McLorinan that the obstetrician should step in to correct Nature, who was apparently perpetuating a miscalculation in the length of a normal pregnancy. She has asked her readers to believe that the human race is increasing in intellectuality and that, as changes in function are succeeded by a corresponding change in structure, the size of the fœtal head has already become too large at nine months to pass safely through the normal woman's pelvis. Felix Meyer challenged the correctness of the premises on which this extraordinary hypothesis was founded and incidentally delivered from the store of his ripe experience a sound and valuable sermon on Nature's ability to overcome many of the difficulties which the interfering obstetrician transforms into disaster by misjudging the part he is called upon to play.

In August, 1921, J. H. L. Cumpston prepared the way for an exhaustive discussion on the effect of modern legislation on the incidence of syphilis. This discussion has been postponed, but we understand that it will be resumed in the near future. In the article referred to Cumpston selected the sta-

tistics of infantile mortality as a relatively safe index of ante-natal syphilis. In the same issue Hamilton Fairley and Robert Fowler published a letter, dealing with the incidence of syphilis revealed by serological and clinical examination among the patients in the Women's Hospital, Melbourne. In a recent issue the same authors have given the medical profession two articles of exceptional importance on familial syphilis. The key to the problem of the prevention of maternal and infantile disaster from syphilitic infection is contained in their studies. It is by no means a simple matter, but by following out the proposal of a coordinated effort of the profession, especially in collaboration with the hospitals, to treat syphilis as a family disease, an immense amount of good can be expected.

Sir John Phillips has summarized his practice in regard to the indications for procuring abortion. He counsels reluctance to bring about a termination of pregnancy. In every case in which he induced abortion, he was in complete agreement with the consultant. The indications include severe albuminuria, intractable vomiting, uncompensated cardiac lesions and glycosuria, *inter alia*. He refuses to admit pelvic deformity as an indication for abortion. This condition should be treated, if necessary, by Cæsarean section.

The subject of the treatment of *placenta prævia* has been discussed by several American obstetricians, including those in charge of the maternity department of the Johns Hopkins Hospital. The conclusion reached after a careful review of a considerable series of cases is that in the majority of instances, version with slow extraction yields the best results, provided that the *os uteri* is sufficiently dilated to admit the hand. For primiparæ with central *placenta prævia* and a rigid, slightly dilated *os uteri* Cæsarean section is recommended.

Gordon Ley, Eden and Snowden have followed up the subject of accidental hæmorrhage and have endeavoured to define its pathology. According to Ley, it would seem that the first change in the condition is a localized necrosis of the uterine muscle. As the necrosis involves small blood vessels, some hæmorrhage takes place. The blood passes in channels through the decidua and leads to the separation of the placenta and consequent extensive hæmorrhage. It is suggested that the primary necrosis is caused by a toxin, since the condition is frequently associated with albuminuria. The nature of the postulated toxin remains a mystery.

Professor John I Hunter has contributed a very important article to this journal, in the course of which he has described in detail the anatomical characters of an instance of primary ovarian pregnancy. He has demonstrated without doubt that a decidual reaction can take place inside the ovary. This remarkable study has revealed the solution to one or two questions in embryology which have been in dispute for many years.

Gynæcology.

The year 1921 has witnessed a steady progress in that special branch of surgery known as gynæcology. In a few instances improvement has been registered in operative technique. Many admirable articles have appeared in the journals standardizing the ætiology, pathology, diagnosis and treatment of inflammatory lesions and neoplastic diseases. Among the former, that of H. H. Schlink may be mentioned. In connexion with malignant growths, Gordon Ley and T. W. Eden have endeavoured to define what is meant by the precancerous condition. They have noted that the change from benign to malignant in the histology of tumours is so gradual that they are inclined to include among the so-called precancerous conditions all those lesions which at times manifest atypical glandular or epithelial proliferation. They advocate the surgical removal of these neoplasms. In regard to ovarian tumours, W. E. Goodall has investigated the origin of epithelial tumours of this organ. He doubts whether real tumours develope from Graafian follicles. He has shown that dermoids and teratomata are derived from ova. Peritheliomata occur eight times more frequently than sarcomata in the ovary. From this fact Goodall assumes that they originate from the interstitial cells, which occupy a position morphologically betwen epithelial and connective tissue cells. E. Glynn has written concerning the so-called ovarian hypernephromata. He finds that they do not arise from suprarenal "rests" in the ovary; they are in his opinion lutein tumours. They are not associated with changes in the secondary sex characteristics.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

The Regulation of the Water Content of the Human Body.

G. F. ADOLPH (*Journal of Physiology*, May, 1921) describes experiments which were designed to exhibit the normal adjustments of the body fluids. The experiments consisted in the introduction of water and other substances into the circulation from the alimentary tract. In other experiments the introduction of water was curtailed. If the organism had been receiving its normal physiological supply, the ingestion of a large amount of water in two hours did not cause dilution of hæmoglobin in the blood and the water was rapidly excreted in the course of the subsequent diuresis. It might be supposed that the diuresis would wash from the body some of the substances to which it was physically related in the organism. This is not so, as the total solids eliminated in the twenty-four hours during which copious water was ingested was approximately the same as the amount eliminated during twenty-four hours of complete thirst. There was a temporarily increased secretion of a few substances, such as urea and chlorides, but this was compensated for by a lessened rate of excretion of these substances after the diuresis was finished. Hypotonic salt solutions caused the same effect as mixtures of isotonic solutions and water. The water in excess was rapidly excreted, while the salts were retained. If isotonic salt solutions were administered, there occurred a retention of water of longer duration and the hæmoglobin was slightly diluted. The injection of sodium chloride or other salts or urea in strongly hypertonic solution did not prevent diuresis by holding the water in the body. The substance injected was excreted in a concentrated form, so that almost all had been eliminated at the end of the diuresis. The hæmoglobin was found to be slightly concentrated during the period of absorption from the intestine. A diuresis was established by taking hypertonic sodium chloride and an attempt was made to inhibit it by the injection of sufficient water to make the remaining salt isotonic. Far from inhibiting the diuresis, a large quantity of water with salt was excreted. Conversely, a diuresis was established when water was ingested. Later fifteen grammes of sodium chloride were taken. The water elimination ceased, but a salt diuresis occurred which presumably reduced the salt to an isotonic amount. After dehydration of the organism by sweating, by stopping the fluid intake and by exercise the body weight fell. Ingested water was then retained until the body weight was restored to normal. The reduction of the water content of the organism by these means did not lead to depletion of its salt content. There is no reserve in the body of free water, analogous to that of glycogen and fat. No water is stored in the body, but the supply of circulating water is kept constant, even at the expense of tissue structure, just as the amino-acids and glucose are kept constant during starvation.

Physical Fitness and Breathing.

HENRY BRIGGS (*Journal of Physiology*, June, 1921) has described a series of experiments in which the respiratory exchanges of several subjects, some of whom breathed air and others oxygen, were recorded while they performed various amounts of work on a Martin's bicycle ergometer and whilst they walked and ran on the flat and up inclines. The consumption of oxygen during the performance of heavy work may increase to as much as ten times that during rest. The percentage of carbon dioxide in the expired air at first increases with lighter work; but when the work is increased beyond a certain amount, it declines. Exertion which can be maintained for prolonged periods, *e.g.*, walking on the flat, is referred to as a "normal load." A more strenuous task, *e.g.*, running quickly, is termed an "over-load." The rate of work which corresponds to the maximal carbon dioxide percentage in the expired air, is considered to be intermediate between an overload and a normal load. This is called the "crest load" and it varies according to fitness and fatigue. Fatigue determines the level of the crest load. A certain load may be normal when a person is fit, but it may be an over-load when he is unfit. Curves are drawn in graphs, the abscissæ of which show the amount of work done when the subject breathes air and oxygen respectively, while the carbon dioxide percentage in the expired air is shown in the ordinates. In the fit subject there is little difference, whether he breathes air or oxygen, until the crest load is reached. The curves run together. On an over-load he benefits considerably by the breathing of oxygen. The unfit, sedentary subject, on the other hand, benefits throughout by the addition of oxygen to the inspired air. His oxygen want is apparent at relatively low rates of exertion. The divergence of the two curves when the subject breathes air and air *plus* oxygen, serves as a measure of his individual fitness. A man may be compared to a steam-boat. He has a certain economical speed, at which he does most work for each litre of oxygen. This speed is determined by a comparison of the oxygen consumption in litres a minute with the varying rates of work. In the case of one subject, his economical speed while he was walking on a floor, was 6.3 kilometres an hour, at which rate he moved 89 metres, for each litre of oxygen. When he walked on grass, it was 4.7 kilometres an hour, when a litre of oxygen carried him 74 metres.

The Innervation of Veins.

J. F. DONEGAN (*Journal of Physiology*, August, 1921) studied the effect of nerve stimulation on the constriction and dilatation of veins in cats. Three methods were employed. These were (*i.*) direct observation, (*ii.*) the isolation of a vein from its tributaries and the connexion of its central end to a water manometer and (*iii*) the recording of the rate of continuous flow of Ringer's solution through the tied off vein on a revolving drum by means of an electric drop recorder. Stimulation of the anterior crural nerve with strong induction currents caused obliteration of the lumen of the internal saphenous vein up to the junction of the deep vessels. The origin of the fibres is in the lumbar sympathetic cord between the third, fourth and fifth sympathetic ganglia. The pre-ganglionic fibres leave the cord chiefly in the anterior roots of the second and third lumbar nerves. In some cats the veins reacted immediately to very weak stimuli, whilst in others they did not contract at all on the first stimulation of sixty seconds, but reacted with a very long latent period and slow contraction on second stimulation with the same strength of current. When a superficial vein receives a deep tributary returning blood from the muscles, contraction always stopped somewhat distal to the point of junction. Adrenalin caused constriction of the superficial veins, but had no action on the deep veins from the muscles and the *vena cava*. The superficial veins are subject to central tone, as shown by section of the nerve which caused dilatation of the veins. They were not affected by the usual vascular reflexes as brought about by stimulation of the central end of the vagus or of the sensory nerves, although each caused the customary rise of blood pressure. The inferior mesentric veins, on the other hand, showed a decrease in the calibre of the vein when any rise of general blood pressure was reflexly produced. No effect was found in the veins from the muscles and the *vena cava*.

The Pulmonary Circulation.

F. A. BAINBRIDGE AND F. P. UNDERHILL (*Proceedings of the Physiological Society*, May, 1921) describe the effects produced on the circulation by ligature of the left pulmonary artery in cats. With the chest open and with artificial respiration there is an immediate rise of blood pressure in the main pulmonary artery, which is maintained for ten to twenty minutes. There is no change in the aortic pressure, pulse rate, or the output of the heart. In further experiments the chest was closed after ligature of the left pulmonary artery and the animal was allowed to breathe naturally after it had been ascertained that the normal negative intra-thoracic pressure had been re-established. In these circumstances the animals showed considerable dyspnœa and death occurred in three out of four experiments within half an hour. *Post mortem* the appearances of the left lung were very different in the two cases. After the experiment in which the chest was open, the lung was obviously blanched,

whereas with the chest closed the lung subjected to experiment appeared as full of blood as the sound lung. It is suggested that as a result of the respiratory movements blood is sucked from the left auricle into the pulmonary capillaries where it stagnates, thereby lessening the volume of the circulating blood.

BIOLOGICAL CHEMISTRY.

Human Enterolith.

H. S. RAPER (*Biochemical Journal*, May, 1921) has examined an enterolith obtained from a person operated on for intestinal obstruction. The stone was found about the middle of the jejunum and gave rise to the obstruction. In the ordinary way it might have been taken for a gall-stone, but was more friable than gall-stones. It was of the size of a walnut and had no nucleus on section. It weighed 6.8 gm.. When it was heated on platinum foil the material almost entirely burnt away. It was thus of organic origin. Quantitatively it contained 1.2% ash. The majority of human enteroliths consist of inorganic matter, principally ammonio-magnesium phosphate, calcium phosphate and calcium carbonate. The stone contained a portion easily soluble in ether, but the greater part was insoluble in ether but soluble in alcohol. The part soluble in ether formed about one-sixth of the calculus and consisted of fats and soaps. About one-twelfth consisted of proteins and was derived probably from food residues. The remainder, forming about three-fourths of the enterolith, consisted of an unconjugated bile acid. This acid was found from its melting point, elementary composition and optical rotation to be choleic acid. This acid would be derived from bile resins by bacterial action. There was no sign in the patient that the stone had been derived from the gall bladder. As choleic acid and cholic acid are relatively insoluble in water, it is difficult to explain how the preferential deposition of one of these acids rather than the other can take place. It may, however, be assumed that only one acid is formed in the liver. The existing analyses of human bile furnish no support for this assumption. It would seem more likely that glycocholeic acid, which is more insoluble than glycocholic acid, was deposited in the first instance and subsequently bacterial action decomposed it, giving rise to choleic acid.

Vitamin in Dried Milk.

H. JEPHCOTT AND A. L. BACHARACH (*Biochemical Journal*, May, 1921) have made a study in reference to the presence of the anti-scorbutic accessory food factor in dried milks. The experiments have been conducted upon guinea-pigs. Certain improvements in technique have been introduced. Young animals of a weight of 250 gm. were fed on cabbage, oats and bran. The milk was added to the diet when the animal had reached a weight of 350 gm. with a normal rate of growth. Abnormal animals were not used for milk tests. As guinea-pigs do not take more than 50 c.cm. of water each day, the milk powders were made into thin cream with three times its weight of hot water. This cream was made up fresh daily with hot water rather than with cold or boiling water. Four series of experiments have been carried out. In the first three comparisons have been made of summer milk, winter milk and winter milk neutralized with sodium bicarbonate before drying. All three were dried by the roller process, in which the milk is in contact with the heated surface less than three seconds. In the fourth series a full cream milk dried by the spray process has been included. In composition all the milk powders were practically identical. The results of the experiments have shown that the anti-scorbutic values of the summer milk and of the winter milk were about equal to one another and to those of the original raw milks. The neutralized milk had an anti-scorbutic value somewhat less than that of the raw milk. The milk made by the spray process was deficient in anti-scorbutic value, the guinea-pigs dying of acute scurvy in about forty days with considerable consumption of the milk powder. In the authors' experiments, 26 c.cm. of reconstituted milk per 100 gm. of body weight was, on the average, sufficient to afford protection against scurvy in the guinea-pig.

Vitamin in Condensed Milk.

ELEANOR M. HUME (*Biochemical Journal*, May, 1921) has made a study of the antiscorbutic value of condensed milk. Since unsweetened condensed milk is heated above 100° C. to sterilize it, no tests were made upon it. Sweetened condensed milk is heated to about 50° C. during concentration, which is carried out *in vacuo*. The experiments were made upon monkeys with a well-known brand of condensed milk. In the experiments, two batches of milk were used. The condensed milk was made from pooled full cream milk. This was heated to 80° C. for three minutes. The hot milk was mixed with the sugar and passed to a vacuum condenser in which the milk boils about 50° C. for three hours. It is then cooled in bulk. The monkeys were fed on a diet of boiled white rice and wheat germ. Tests made on these monkeys showed that 200 c.cm. of raw milk was sufficient to prevent the onset of scurvy. The monkeys were given in the first test the equivalent of 250 c.cm. of raw milk. They remained well and grew between 700 gm. and 800 gm. in 190 days. One monkey received then the equivalent of 200 c.cm. of raw milk. It remained well and grew 700 gm. in 260 days. The other monkey received the equivalent of 150 c.cm. of raw milk, together with 50 c.cm. of autoclaved milk. It remained well, but grew only 380 gm. in 246 days. It would appear from these experiments that the loss of anti-scorbutic vitamin, if there is any loss at all, is very small in amount.

Estimation of Sugar in Urine.

J. B. SUMNER, with the assistance of V. A. GRAHAM (*Journal of Biological Chemistry*, June, 1921) has devised a new method for the estimation of reducing sugar in urine. The methods at present in use yield accurate results when the amount of sugar in the urine is considerable, but lead to less accurate results when the quantity of sugar in the urine is small. Special methods, usually laborious in their execution, have been worked out for more accurate measurement of low percentages of sugar in the urine. The author has introduced a new reagent, dinitrosalicylic acid, which is reduced by glucose to a highly coloured compound. The estimation is made by comparing the colour with that produced by a standard solution of glucose. It is well known that picric acid forms a highly coloured body with glucose. Picric acid forms, however, coloured compounds with urinary constituents other than glucose. The author sought a substance which would not form a coloured compound with acetone or creatinine, and which would not be reduced by urinary components other than the sugars. Two nitro compounds, dinitroguaiacol and dinitrosalicylic acid, were found suitable and the latter has met better the requirements of a reagent for clinical use. Details are given of a series of tests by which the suitability of the agent was tested. The author describes the method to be adopted in using this reagent in clinical practice.

Absorption of Lime.

E. H. MASON (*Journal of Biological Chemistry*, June, 1921) has made a series of estimations of the amount of calcium in the plasma, with the object of determining whether there is any increase in the quantity of lime in the blood after the administration of soluble salts of calcium. Salts of calcium, especially the lactate, have been used extensively in medical practice as hæmostatics, but there has been an absence of any proof that this administration has led to an increased content of calcium in the blood. The author has made use of a method by which the amount of calcium could be estimated in a comparatively small quantity of blood. The observations have been carried out on eleven persons. Three of the experiments have been repeated on the same persons. Calcium lactate and calcium chloride have been given in doses of 5 gm. and the amount of calcium in the plasma measured immediately before administration and one, two and three hours later. In three tests the calcium lactate was given along with 25 c.cm. of cod liver oil. From the results it would appear that a single large dose of calcium lactate, however given, has practically no influence on the value for lime in the blood plasma. On the other hand, there is a consistent increase in the value for lime in the blood plasma after the administration of calcium chloride. Approximately the figure for calcium increases in three hours from 12 mg. to 14 mg. per 100 c.cm. of plasma.

British Medical Association News.

SCIENTIFIC.

A MEETING of the Queensland Branch of the British Medical Association was held on September 2, 1921, at the B.M.A. Building, Adelaide Street, Brisbane, DR. A. H. MARKS, C.B.E., D.S.O., in the absence of the President, in the chair.

Strabismus.

DR. A. J. MACDONALD showed four patients with concomitant strabismus. In each case there was a difference in the amount of fusion present. The first patient was a boy, aged thirteen years. Dr. MacDonald had first seen him on January 11, 1921. The child had been weakly as a baby, had crawled at the age of ten months and had walked at the age of five and a half years. The squint had been noticed when the child was two years of age. He had been under treatment and had been wearing glasses for seven years. No improvement had taken place. Each eye had a normal appearance. No changes were detected in the fundi, the discs or the media. The oculo-motor muscles were active. The vision of the right eye was $^{6}/_{6}$ (Ji). The vision of the left eye was $^{6}/_{9}$ (Ji) unaided. When the patient fixed with the right eye the left eye deviated 65°. When he fixed with the left eye the right eye deviated 55°. Dr. MacDonald recognized the condition as one of alternating strabismus with monocular vision, but no binocular vision and no trace of fusion.

Exercises were carried out twice weekly by means of Worth's amblyoscope for a period of four months. A slight degree of fusion was obtained. On June 10 Dr. MacDonald performed a tenotomy of the internal rectus muscle and the operation for advancement of the external rectus of the right eye. Three weeks after the operation the right eye deviated 7° measured by Priestly Smith's tape. Fusion exercises were then continued and to Dr. MacDonald's great surprise the fusion centre developed and became complete after four exercises. He remarked that C. Worth had not reported any cases in which, after the fusion centre was absent, it had developed completely at so late an age as thirteen years.

The second and third patients were sisters, aged thirteen years. They were two of triplets. The third child was healthy and well and had good vision. Squint had developed in both girls at about the age of three years. No treatment had been instituted. In the one child the vision of the right eye was $^{1}/_{60}$ and of the left eye was $^{6}/_{6}$ (Ji). In the other child the vision of the right eye was $^{6}/_{5}$ (Ji) and that of the left eye $^{2}/_{60}$. The angle of deviation in each case was 15°. The oculo-motor muscles were active and the fundi and media were normal.

Dr. MacDonald covered the better eye in each case with a pad and bandage or strapping and left it covered for two months. The vision in the defective eye improved gradually to $^{6}/_{12}$ in the one child and $^{6}/_{18}$ in the other unaided. He then carried out a retinoscopy under atropine and prescribed the necessary glasses to correct the error of refraction. In the old child a + 5 sphere yielded $^{6}/_{9}$ vision (Jii) with the right eye and a + 3 sphere yielded $^{6}/_{6}$ vision (Ji) with the left eye. In the other child a + 3.5 sphere yielded a $^{6}/_{6}$ vision (Ji) with the right eye and a + 5 sphere yielded $^{6}/_{12}$ vision (Jiv) with the left eye. Fusion exercises were continued, but the angle of deviation did not lessen. He therefore performed tenotomy of the internal rectus in each child and fourteen days later reinstituted exercises. The fusion rapidly became complete. The vision of the defective eyes had improved to three letters of $^{6}/_{6}$ and Jii.

The fourth patient, a girl, five years of age, was first seen on June 17, 1921. She had always been a strong child. At the age of two years she had had varicella and after recovery a squint was noticed. The family doctor advised that there was no cause for anxiety and predicted that "the eye would come straight." During the following three years the child had been taken to the family doctor and, although the deviation was increasing, the doctor had repeated his previous advice. On being pressed to do something, he had advised the mother to take the child to an optician. The optician did not attempt to correct the error of refraction, but referred the child to Dr. MacDonald. Dr. MacDonald found that the cornea, the media and the fundus in each eye were apparently normal. The vision of the right eye was $^{2}/_{60}$ and of the left $^{6}/_{6}$. There was a deviation of the right eye 60° inwards. The left eye was covered with a pad and strapping, which was removed once each week for fusion exercises. The vision of the right eye improved rapidly and at the end of one month it was $^{6}/_{12}$. He then examined with retinoscopy under atropine and prescribed a + 6 sphere for the right eye and a + 5 sphere for the left eye. Fusion exercises were then continued and rapid improvement followed. The eye had kept straight for one month, but the fusion centre was not yet complete.

Eye Lesions.

DR. J. LOCKHART GIBSON exhibited specimens of various eye conditions. The first was an eye removed from a man, aged 45 years, on account of a sarcomatous growth of the iris situated between the lens and the iris. In three places the tumour had penetrated through the base of the iris into the anterior chamber. The specimen was being preserved in 2% dilution of formalin. Dr. Lockhart Gibson proposed to have sections cut at a later date.

Dr. Lockhart Gibson read some notes of a case of glioma of the optic nerve (see page 38). He also showed an eye which had been fixed in 2% dilution of formalin. On section it was seen that there was a thick stem of persistent hyaloid arterial tissue stretching from the optic disc to the lens and forming a cup behind the lens. The eye, which had been blind, had been removed on account of inflammatory changes in the parts anterior to the lens.

DR. E. O. MARKS showed a specimen of melanotic sarcoma of the eye.

Skiagrams.

DR. V. MCDOWALL exhibited skiagrams of (*i.*) vesical calculus, (*ii.*) renal outlines in the same patient, (*iii.*) pyloric stenosis due to gastric ulcer, (*iv.*) the gall-bladder, the skiagram being taken with the aid of a Potter-Bucky diaphragm, (*v.*) the antero-posterior view of the skull in a case of increased intracranial pressure, (*vi.*) two gastric ulcers on the lesser curvature, (*vii.*) *myositis ossificans* of the humerus near the elbow.

Torsion of Small Intestine.

DR. H. T. ILLINGWORTH read the notes of a case of torsion of the small intestine (see page 37).

The General Practitioner's Work.

DR. J. A. CAMERON read a paper entitled "Notes from the Day's Work—Medical, Surgical and Obstetric."

DR. A. H. MARKS congratulated Dr. Cameron. He referred to the care exercised in the compilation of the histories of the illnesses. He held that these details were essential if they would advance in medical knowledge.

DR. A. STEWART was disappointed that Dr. Cameron had made no mention of the epidemics of pneumonia which occurred during droughts and which were due to dust. During these epidemics he had noticed that the mortality was lower among patients treated in hospital than among those treated at home. In Queensland many of the cases were of an abortive type. He did not think that oxygen inhalations were of use in the treatment. In conclusion, he asked Dr. Cameron what treatment he applied in cases of vaginal ulceration.

DR. E. S. MEYERS said that he had seen several children whose only symptom of pneumonia during the first two days of illness was howling. He held the view that gonorrhœal salpingitis was the cause of the frequent occurrence of ectopic gestation. Minor degrees of contraction of the pelvis gave the obstetrician the greatest amount of trouble. He asked Dr. Cameron whether measurement of the pelvic diameters was a practical procedure and he also asked him whether he carried out vaginal examinations. He stated that he would like to know if Dr. MacDonald had met with cases of cystocele and dribbling of urine *post partum*. Dr. Meyers referred to Jellett's advocacy of pubiotomy in contracted pelvis.

DR. S. F. MCDONALD thought that Sir James Mackenzie and Dr. Cameron would have been great friends. He would have liked to have heard more from Dr. Cameron in

regard to prognosis. What were the prospects in after life of children who had rheumatic heart disease? When could a man return to work after an attack of pneumonia?

DR. R. MARSHALL ALLAN stated that he was struck by the relative frequency of ectopic gestation in Australia as compared with Great Brtiain. He did not agree that gonorrhœa was the sole cause of this. He was pleased to note that Dr. Cameron had emphasized the necessity of improvement in the training of obstetric nurses. He agreed with him that the management of the third stage of labour was most important. This was apparently not recognized, either by the practitioner or the nurse, in many cases. He could not follow Dr. Cameron's objection to douches after operative manipulations. In his experience they did not do any harm. Although the scope of Cæsarean section was undoubtedly being widened, there did not appear to be enough recognition of the fact that a considerable risk existed of rupture of the scar in future labours. He was not in favour of performing Cæsarean section as late in labour as Dr. Cameron had done. He considered that the mortality of late operation was too great to justify its adoption as a method of general procedure. He was of opinion that pubiotomy was an operation for the specialist and not for the general practitioner.

DR. J. A. CAMERON, in reply, thanked the members for the manner in which they had received his paper. He had come to the conclusion that oxygen inhalation was beneficial, because the colour of the patient improved after its use. He stated that there was nothing to prove that gonorrhœa was the cause of ectopic gestation. In regard to rupture of the perineum, he inserted through-and-through silkworm gut sutures into the perineum; he did not apply sutures separately to the vaginal lacerations. In his experience severe degrees of contracted pelvis were rare in Australia. Mild cases were relatively common; it was difficult to apply pelvic measurements of value in these cases. External measurements were of very little help. It was important to estimate the relative size of the fœtal head and of the brim of a pelvis. Dr. Cameron held that it was difficult to anticipate how the labour would proceed, because it was impossible to tell how much moulding there would be of the head during labour. He did not make a vaginal examination during pregnancy, neither did he measure the pelvis as a routine procedure. He considered that pubiotomy was not an operation to be performed in a private house. Forceps should only be used if the head were fixed in the pelvis. He deprecated the practice of the nurse sending for the doctor when she thought that forceps should be applied. This point was one concerning which the doctor alone was competent to decide. He maintained that a douche after operative interference was useless to prevent sepsis, as the organisms were not washed away mechanically in the stream.

A MEETING of the Victorian Branch and of the Section of Preventive Medicine was held on September 7, 1921, at the Medical Society Hall, East Melbourne, MR. BASIL KILVINGTON, the President, in the chair.

Tuberculosis and its Prevention.

DR. F. S. HONE read a paper entitled "Tuberculosis in Australia and its Prevention." In approaching the subject, Dr. Hone indicated the peculiar position of Australia in regard to the campaign directed toward the eradication of pulmonary tuberculosis. Between the years 1870 and 1890 there had been a considerable and rapid rise in the death-rate from this disease. This rise was followed for a period of twenty years by a fairly rapid fall. During the last ten years the mortality rate had been practically stationary. In Europe and America there has been a marked rise in the death-rate from pulmonary tuberculosis since the beginning of the war. In European countries, with the exception of France, during the period following 1914 the rise had been ascribed to the privations of war, while the rise in 1918 had been traced to the after-effects of the influenza epidemic. In the United States the steady rise between 1916 and 1918 had been attributed to trade depression, which dated back to 1913, and the later rise in 1918 to influenza. In Australia the effects of war had not been felt during the early years, while the influenza pandemic had not exerted its effects until 1919. Dr. Hone discussed the possible causes of the rise in Australia and arrived at the conclusion that war had distracted their attention from the tuberculosis problem to venereal disease, to the prophylaxis of bilharziosis and malaria and to the prevention of enteric fever. No fresh knowledge had been accumulated in connexion with tuberculosis and the interest of those responsible for public action had been transferred to these other subjects. He recalled the fact that it was ten years since a conference of the responsible medical officers of the several States had been held to consider the measures that should be taken for the control of pulmonary tuberculosis in Australia. In the report of this conference it was pointed out that it had been unanimously resolved that compulsory notification was the indispensable foundation of every sound scheme. Dr. Hone pointed out that notification of pulmonary tuberculosis has been introduced in all the States. The other resolutions which had been adopted at the conference, included recommendations for the provision of facilities for the early detection of the disease, including free bacteriological examination of sputum, the acquisition of legal powers by the health authorities to enforce the medical examination of persons known to have been in contact with consumptives and to regulate the conditions in which home-dwelling consumptives lived, the passage of legislation to enable the health authority to remove a dangerous consumptive into segregation on the order of a police magistrate, the provision of accommodation for persons suffering from pulmonary tuberculosis in an advanced stage, the arrangement for the financial support of the wives and families of necessitous persons undergoing compulsory treatment in hospitals or sanatoria and the adoption of more effective measures in regard to immigrants found to be tuberculous. Dr. Hone assumed that everyone present would regard the resolutions passed at the conference as the foundation of preventive measures. Not one State, nor yet the Commonwealth, had carried these resolutions into effect. It seemed to him that the discussion was justified only because of the possibility of ascertaining why the lethargy still existed and because they might help to overcome that lethargy. If the medical profession kept on saying "These measures have to be taken!" Governments would have to make a move.

Dr. Hone first dealt with pulmonary tuberculosis as an infectious disease. It was no longer held that the disease was hereditary and the majority agreed with Boas that there was no such thing as a tuberculous habitus. He expressed the opinion that it was not likely to lead to improvement if they discussed whether it was the bacillus or the environment that should receive attention and questions of that kind. To his mind the crucial point of attack in tuberculosis, as in every other communicable disease, was the infective individual. It was especially difficult because of the long latent period and because of the intermissions and relapses of the disease. They had learned in regard to enteric fever that an infected individual was not always the same as a diseased individual, that an infected individual was not always the same as an infective individual and that an infective individual was not always the same as a diseased individual. In pathology they had to think of the infected individual and his reaction to infection; in therapeutics they had to think of the diseased individual and his reaction to treatment; in prevention they had to think of the infective individual and his reaction to others. After dealing briefly with the infecting agent, Dr. Hone referred to the opinion of Batty Shaw that nearly everyone was infected in childhood. He also quoted the views of Fishberg, Nathan Raw and others in regard to immunization processes. The majority of these views tended to lead them astray and to cause them to overlook the fact that they had to do with matters still in dispute. It was a mistake to abandon the offensive for the defensive.

In dealing with an infection they could break the chain as the organism left the host, in its intermediate passage from the host to the victim or at the portal of entry to the new victim. He argued that in the case of tuberculosis as in typhoid fever the first plan was the best. They should deal with the "carrier." Before leaving this aspect of the problem, Dr. Hone stated with emphasis that it was by means proven that infantile infection was universal in Australia. Robertson's figures in the Bendigo investigation and Cowan's figures in South Australia revealed a

large number of persons who did not react to tuberculin, either when applied for the von Pirquet test or when injected subcutaneously. In his own country practice, soon after he had graduated, he had been impressed by the evidence of contact of adult patients with others suffering from the disease. There was going on side by side infection of infants and direct infection of adults. An infection was much more likely to occur after a massive dose. It was therefore more prone to take place from a person in the final stages of consumption. He therefore pleaded for a collective investigation into the actual state of affairs in Australian communities.

The second factor militating against improvement was the dissociation of the general practitioner from the public health administrator. He developed his argument with the view to the recognition of the necessity of a close association between the general practitioner in charge of the patient or the physician in the sanatorium and the administrator. Monetary assistance was required in many cases to aid the patient in his uphill fight under unfavourable conditions. This could not be obtained except with the aid of the administrator. There should be farm colonies or village settlements and the power to keep the patient under supervision in a favourable environment. Dr. Hone was not prepared to enter upon a discussion at the moment concerning methods of treatment, but confined his remarks to general principles. A central free dispensary in every large city was one of their necessities. Patients after discharge from sanatoria should be required to report at these dispensaries at regular intervals. Night clinics as well as day clinics would be necessary. In the next place, open-air clearing wards in the grounds of every hospital for infectious disease should be established. The patient could be referred to these wards as soon as the fact of infection was determined, until admission to a sanatorium or home for persons in the advanced stages of the disease could be arranged. Neither the dispensary nor the clearing ward would be possible unless the general practitioner secured the cooperation of the administrator.

He held the opinion very firmly that it was a mistake to attempt to treat or control patients with "open" lesions or advanced disease, except by segregation in special hospitals. The greater number of infections were conveyed from these patients. The sputum was larger in amount and contained more infecting organisms, the patients were more helpless and required more close contact with other persons and consequently the facilities for infection were greater. In Australia there were probably about 1,500 beds available for consumptives, of which not more than 700 at a liberal estimate were for persons in the advanced stages. The average number of deaths from pulmonary tuberculosis in the Commonwealth each year was 3,000. It would thus be seen that the practitioner was dependent on the administrator for an increased accommodation for the segregation of these patients.

Dr. Hone then dealt with the necessity for assistance from the general practitioner to enable the administrator to carry out his part of the scheme. He dealt with the question of notification, which was the starting point for all measures of control. He instanced cases in which notifications were either sent in after the patient was dead or not even then. It was essential that the practitioner should be asked to call to his aid all possible means of early diagnosis and to endeavour to make his diagnosis in the pre-infective stage. Not only should the diagnosis be made early, but the practitioner should make an attempt to prevent the patient becoming infective. In the next place, the administrator should have the right to require that every chronic sputum should be examined regularly for evidence of tuberculous infection. He should further invite the cooperation of the practitioner by asking him to examine periodically all household contacts of a deceased consumptive.

Dr. Hone deprecated the tendency among many medical men of writing or speaking of this or that remedy as the one thing needed to solve the problem. It was necessary for the general practitioner, the sanatorium expert and the public health official to collaborate and to maintain a continuous and combined effort. Indications were given of the good prospect of success of this plan of campaign. Dr. Hone referred to the measures that had been adopted in the City of Adelaide and to the results following the prosecution of an energetic campaign.

The last chapter of the paper was concerned with the means to be adopted to bring about the desired cooperation between the practitioner and the administrator. He favoured the appointment of a special officer in each State, under the Head of the Public Health Department, who should be responsible for the carrying out of the measures. The results of the work could be judged after a period of five years. This officer would act as the intermediator between the Department and the general practitioner. His work should be educational and investigational, as well as administrative.

DR. L. S. LATHAM considered that the occasion was opportune for discussion and exchange of views between those engaged in the curative treatment of tuberculosis and the administrators of the various public health measures designed to reduce the incidence of tuberculosis in the commuuntiy. He appreciated the difficulties under which those responsible for the administration of the *Public Health Acts* laboured, more especially the difficulty caused by the present financial stringency. He wished to make this point clear at the outset of his remarks, in order that anything he might say later might carry no implication against those who were charged with the duty of guarding the public health.

Turning to the consideration of ways and means for attaining the ultimate objective of ridding the race of the scourge of tuberculosis, Dr. Latham said he found that there was little new to say. The mortality and universal prevalence of the disease were arresting facts, but their very familiarity tended to dull appreciation of their appalling significance. Tuberculosis, like poverty, was always with them and in this expression was seen a crystallization of fatalism and an attitude fatal to all progress. It was essential that the interest of the individual practitioner should be maintained at an efficient, constant level. His immediate consideration was the welfare of the patient, but he should not lose sight of his social responsibilities or fail to realize that the public health authority was dependent upon him for data upon which to base preventive measures on a large scale.

The various activities directed towards combating tuberculosis resolved themselves into two main principles: (*i.*) the control of the infective patient and (*ii.*) the maintenance of a high degree of resistance in the community.

Dr. Hone had laid great emphasis on the first principle, but the second was equally important. Every possible means should be employed to build up the individual and community resistance and in this connexion the necessity for good housing, proper feeding and good working conditions was apparent.

While there should be no relaxation of effort to control the infective patient, in very many instances careful handling was necessary to avoid panic on the part of the patient at the very outset of treatment. There was a morbid fear abroad of consumption and frequently one of the first duties of the medical practitioner was to find some means of countering the terror induced in the patient by the pronouncement that he was tuberculous. Reassurance might be conveyed by information judiciously imparted to the patient concerning the almost universal incidence of tuberculous infection; he would feel less an outcast when he realized that the vast majority of people were infected in greater or less degree by the tubercle bacillus. He might also be made acquainted with the important part played by immunity in the cure of the individual case.

Dr. Latham added some remarks on notification of tuberculosis and pointed out that in Victoria all forms of tuberculosis were notifiable. The carrying out of this regulation was a very difficult matter, both for the practitioner and the health authority. It appeared to him that notification should not be insisted upon for those clinical types of tuberculosis, such as sero-fibrinous pleurisy, which were non-infective. A drag-net clause such as that in operation in Victoria should be used with the greatest discretion; notification involved for the patient a certain risk of economic disadvantage and a possibility of social ostracism. The probability of the latter was a frequent objection raised by patients to the use of the sputum cup.

In conclusion, Dr. Latham urged that the best assistance the individual could render in the campaign for the

prevention of tuberculosis was to do his very best work on the curative side and maintain a conscientious regard for the social aspects.

DR. R. R. STAWELL expressed himself as appalled at the difficulties confronting the health administration in the control of tuberculosis. These difficulties were inseparable from the wide prevalence, latency and insidious nature of the tuberculous process.

He had been very strongly impressed with the latency of tuberculous infection in two contrasting phases of his clinical experience. The first period to which he referred was that during which he was a medical officer at the Children's Hospital. He recollected the surprise which came with the realization in the *post mortem* room of the extent of glandular infection disclosed in children dying of tuberculous meningitis. In infancy tuberculosis was a fulminating disease, but latent glandular infection was extremely common in children of from five to ten years of age. Indeed, it was a matter for serious consideration how many asthenic, debilitated children were the subjects of hidden tuberculous glandular infection.

The application of the von Pirquet test had shown that infection occurred early in life and persisted; in the work of Calmette, which appeared last year, abundant confirmation of early infection was supplied.

What became of these children? They seemed to be in the balance between immunity and hypersensitiveness to further tuberculosis. In many the infection smouldered on, perhaps to be overcome eventually by the patient, perhaps to waken into activity with the strain of adolescence or at any other period in later life when for any reason the individual's resistance became impaired. No doubt infection was most frequently to be attributed to the child's home surroundings and the close association with infective relatives. But how could such sources of infection be eliminated? If the father and mother were removed, what was to be done with the children, who were not only potentially, but actually, tuberculous?

Dr. Stawell said that the tendency of tuberculous infection to remain latent for an indefinite period of years was again brought under his notice in a most impressive manner during his period of service abroad. Of 300,000 soldiers who left Australia as physically fit, some thousands returned with pulmonary tuberculosis. Only a very small minority of these men could have primarily acquired the disease by massive infection at close "range"; in by far the greater number the process was a recrudescence of an old-standing and quiescent infection, with, quite possibly, super-infection. Among the men who died in Egypt, the *post mortem* evidence of this old infection usually took the form of tracheo-bronchial tuberculous adenitis or the aftermath of a sero-fibrinous pleurisy.

Dr. Stawell said that he considered that a soldier invalided with tuberculosis was tuberculous before the left Australia. He could not believe that any of them primarily acquired the disease by contact with infective patients abroad. Under the varying conditions of camp and transport life and work the hitherto latent tuberculous infection made headway or diminished resistance led to increased hyper-sensitiveness and super-infection.

The extreme susceptibility to infection in early life rendered it imperative that the health authorities should segregate the patients with the "open" forms of pulmonary tuberculosis; but herein lay the difficulty. He recognized that inadequate money hampered efforts in this direction, but for the present they could not expect much more, as the country was carrying the burden of repatriation. A great deal might be accomplished by a discriminating examination of homes and a great fall in the incidence of tuberculosis would ensue if an authority with the powers of a dictator could remove every young child from a home in which there was a tuberculous father or mother and place him under the best conditions until he reached adolescence.

Improvement in the control of tuberculosis could only be slight and gradual, but they ought to proceed on the lines of segregation of infective persons and supervision of susceptible ones.

In conclusion, Dr. Stawell said that he thought a house investigation was an urgent necessity.

DR. J. H. L. CUMPSTON said that he wished to invite the attention of all present to the historic character of the occasion. Never before had there been a full meeting of the Victorian Branch of the British Medical Association with a Section of Preventive Medicine; that such a meeting was arranged was a definite advance and a hopeful augury of that closer cooperation between the practising members of the profession and the public health officers which he had so long desired.

The profession in Victoria had that evening endorsed the Council's nomination of Mr. Syme as President of the forthcoming Congress and no one could be held to be more worthy of the honour. He was reminded that it was just thirty-five years ago since the appointment of the Royal Commission on Sanitation, of which Mr. Syme was Secretary. To the work of that Commission and in no small degree to the enthusiastic labours of Mr. Syme were due a number of reforms, now accepted as routine, but at that time regarded as revolutionary. In paying further tribute to the efforts of Mr. Syme in the field of preventive medicine, Dr. Cumpston expressed the hope that preventive medicine would occupy a very prominent position on the agenda paper for the next Congress. The suggestion of Dr. Hone that the problem of tuberculosis be the principal subject for discussion appealed to him as very admirable and worthy of adoption.

Dr. Cumpston expressed himself as somewhat puzzled by the attitude of Dr. Stawell, from which it appeared that they could not hope to accomplish much in the fight against tuberculosis. If, as Dr. Stawell maintained, the great majority of children were early infected with tuberculosis and phthisis in later life was but the activation of an old infection acquired in childhood, there did not appear to be much to be gained by segregation of persons with "open" lesions. If the supervention of pulmonary tuberculosis was so much a matter of impaired resistance in the individual, what was to be gained by the segregation of the infective persons? To desist from efforts to secure the isolation of infective tuberculous subjects seemed to him (Dr. Cumpston) to be abandoning their most effective weapon.

Unfortunately, the hour was too late for a detailed discussion on what measures might be adopted to minimize the incidence of tuberculosis, but he might urge the members to interest themselves in this important question.

Had the Victorian Branch of the British Medical Association ever formulated its views or made any definite pronouncement on this great problem? He considered that the Branch should take stock of the position and he would like to see them take the report of ten years ago (to which Dr. Hone had referred) and grapple with this urgent question of public health as energetically as they did with the lodge dispute.

DR. G. T. HOWARD, after drawing an interesting comparison between the conceptions of phthisis in the pre-bacteriological days, to which his memory carried him back, and those accepted at the present time, said that he could not take the same view as Dr. Latham in regard to terror inspired in patients by the mention of tuberculosis. In general he found that educated people could grasp the situation when it was put before them and as a rule he experienced no great difficulty in getting them to maintain a hopeful outlook.

With reference to diagnosis, Dr. Howard expressed the opinion that radiographic evidence should be employed only to confirm clinical diagnosis. If he might express his point of view in metaphor, he would put it that science was all right in the top story, provided one had common-sense on the ground floor.[1]

Dr. Merryweather had referred to the fact that hæmoptysis was often the first indication of pulmonary tuberculosis; but, while that was undoubtedly true, he would remind them that it was a frequent event in the course of hydatid infection of the lung. Some years ago he had recorded a series of twelve cases, all of which had been

[1] Dr. Howard's statement would be very difficult to defend. Science means knowledge. If facts are to be kept in the background, accurate diagnosis will become a matter of chance. Perhaps Dr. Howard wished to plead for a more liberal use of common sense, which may be interpreted in this connexion as logical reasoning on unmistakable evidence in the Röntgenological department.—EDITOR.

diagnosed as pulmonary tuberculosis, but which were subsequently shown to be examples of pulmonary hydatid.

In the detection of diagnostic signs of pulmonary tuberculosis in the early stages, always a matter of great difficulty, he attached most significance to an increase in vocal resonance and prolongation of expiration. It was wise to pay particular attention to the inter-scapular region, as it frequently happened that signs might be detected there when they were lacking at the apices.

In conclusion, Dr. Howard said that he regarded as perhaps the most important observations to be made in a patient suspected of pulmonary tuberculosis those relating to the temperature and pulse. A persistent slight rise in the evening pulse-rate and temperature was very significant of tuberculosis.

DR. H. W. PALMER, of the Waterfall Sanatorium, New South Wales, claimed to have had considerable experience in sanatorium practice. He referred to some experiments he had carried out at the Waterfall Sanatorium in 1916, which consisted of the drying of sputum containing tubercle bacilli on panes of glass. The drying was conducted in winter time and in diffused daylight and it was found that the sputum thus dried was non-infective to guinea-pigs. The experiments were controlled by the Principal Microbiologist of the New South Wales Department of Public Health and by the Professor of Pathology of the University of Sydney. The conclusion was that sputum expectorated in the open air was non-infective by the time it was dry. He mentioned these observations by reason of their bearing on the mode of spread of tuberculous infection in a community.

Dr. Palmer outlined a system adopted by the New South Wales Government for the control of tuberculosis. There was a central bureau of tuberculosis, administered under the supervision of specially trained men. The bureau controlled notification, the admission of all patients to beds set apart for the purpose and was invested with powers of compulsory isolation. The responsibility for notification rested upon the attending doctor, from whom was required a short account of the patient's history and an expression of opinion as to whether any further action was required. The doctor was also held responsible for the hygienic conditions of the patient; if he decided that these were unsatisfactory or if for any other reason he decided that the central authority should intervene, the bureau assumed full control.

In such a scheme there was very little interference with the rights of either doctor or patient.

The central authority could allot beds according to a satisfactory classification of cases; sanatoria were thus reserved for early and appropriate clinical types of tuberculosis. In New South Wales 500 beds were available and reserved for patients in the early stages of pulmonary tuberculosis; patients with advanced disease and in a dying condition were provided for elsewhere and provision was made for sufferers from chronic infections in farm colonies.

Another sphere of activity of the central bureau of tuberculosis was concerned with educational and publicity measures. Certainly every member of the medical profession ought to be well versed in present-day methods of mitigating tuberculosis, as it was the most important public health question of the day.

In New South Wales the invalid pension was granted to the families in which the bread-winner was afflicted with tuberculosis. Provision of this kind for dependants was essential in any scheme of tuberculosis administration.

In conclusion, Dr. Palmer said he had found among medical men a tendency to under-estimate the value of sanatoria. Sanatoria found their best advocates among men who had worked in them and among the patients in all instances in which the clinical condition of the patient was of a type suitable for sanatorium treatment.

DR. T. W. SINCLAIR said that an organization on the lines of the Sydney bureau of tuberculosis was an urgent necessity in Melbourne. Patients could then be referred for the necessary examination by expert clinicians. If a cure was to be effected, early diagnosis was essential; he cordially supported Dr. Merryweather's suggestion for a tuberculosis night clinic; it was at least as important as a night clinic for venereal diseases.

It had been estimated that there existed at least three times as many actual cases of tuberculosis as there were deaths from tuberculosis in a year. Sanatorium and hospital accommodation for tuberculosis in Victoria was inadequate, a fact which should be forced on the attention of the authorities.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

CONNELLY, THOMAS JOHN BEDE, M.B., Mast. Surg., 1920 (Univ. Sydney), "Springfield," Arlington Street, Dulwich Hill.

TILLETT, PAUL, M.B., Mast. Surg., 1920 (Univ. Sydney), c.o. J. V. Tillett, Esq., Crown Law Office, Sydney.

SMITH, EDNA L., M.B., Mast. Surg., 1920 (Univ. Sydney), Newnes, New South Wales.

GILCHRIST, ARTHUR GILLESPIE STUART, M.B., Mast. Surg., 1921 (Univ. Sydney), Royal North Shore Hospital of Sydney, St. Leonards.

MORRISON, FRANCIS ALEXANDER, M.B., Mast. Surg., 1921 (Univ. Sydney), Royal North Shore Hospital of Sydney, St. Leonards.

Correspondence.

ANATOMICAL ANOMALIES OF RIBS.

SIR: With reference to Dr. Dennis's inquiry on page 604 of your issue of December 24, 1921, I would like to report that I came across an analogous condition whilst demonstrating in the dissecting room somewhat similar to that depicted in Figure I., where the anterior extremities of the bifurcation of the third or fourth rib coalesced on the left side to form a foramen, but only one piece of cartilage joined the rib to the sternum. Although I made a drawing of the condition, I regret that I did not keep a copy.

I have likewise been unable to find any reference to a similar condition in the literature; but it seems likely that in the process of development the posterior portions of two neighbouring ribs (the third and fourth, fourth and fifth, fifth and sixth respectively in the cases described) have become fused. It would be interesting to know what the relations of the respective intercostal nerves and vessels are in such cases.

Yours, etc.,

H. FLECKER.

24, Collins Street, Melbourne,
December 31, 1921.

"RED BACK" SPIDER BITE.

SIR: Referring to the bite of the "red back" spider, as reported by Dr. Sutherland in your issue of December 31, 1921. This spider has a very evil reputation in the inland districts and for the purpose of determining whether this was deserved, I examined many specimens of what I was assured was the genuine red-back spider during the five years that I was residing in Barraba.

On examining the spider, it was difficult to imagine that it could pierce the skin with its very delicate fangs and on putting the matter to the test of experiment, it was found that it made no attempt to bite on being handled. I tried many times to get a specimen to bite, but without success. One so often hears of blood-curdling and weird results from the bite of this spider that it would be of interest to have the matter properly investigated; perhaps Mr. Froggatt, the Government Entomologist, would be willing to examine specimens sent to him and report as to whether they were venomous.

Dr. Sutherland's "very numerous" cases in Narromine must, I think, be exceptional. The spiders were very common in Barraba, but for five years neither my colleagues nor myself ever treated a bite, nor did I ever get direct evidence of any person having been bitten by one, although

there were plenty of more or less vague histories of severe cases having occurred and the pretty and apparently harmless little creature was looked upon with universal dread.

Yours, etc.,

F. A. RODWAY.

Nowra, New South Wales,
January 3, 1921.

ANOXÆMIA.

SIR: It has been interesting to read Dr. Litchfield's article on "Observations on Anoxæmia," the discussion at the New South Wales Branch of the British Medical Association and the leading article in THE MEDICAL JOURNAL OF AUSTRALIA of December 31, 1921.

One criticism on the paper is, whereas Dr. Haldane apparently classifies alteration of the dissociation curve of oxyhæmoglobin as a primary cause of anoxæmia, Dr. Litchfield classifies anoxæmia due to this cause as secondary. Secondary anoxæmia, according to Dr. Haldane, is produced in a different manner.

It would be interesting to know on what evidence Dr. Flynn, Professor Mills and the writer of the leading article base their contention that "want of oxygen" does not excite the respiratory centre. Dr. Haldane, apparently on good grounds, maintains that it does.

Professor Mills is reported to have said: "Dr. Litchfield would have them believe that cyanosis was not due to want of oxygen. To what could it be due?" Let us ask Professor Mills the same question and further what he means by cyanosis. Professor Mills holds that in cases of anoxæmia due to alterations in the dissociation curve of oxyhæmoglobin, it would be better to stimulate the respiratory centre with carbon dioxide and oxygen rather than oxygen alone. Might one be permitted to further ask Professor Mills "the reason for the faith that is within him."

In the leading article appear the words: "In anoxæmia it would appear that the amount of oxygen taken up by the blood from the alveolar air is probably diminished and the greater part of this oxygen is held tenaciously in solution in the plasma." What is the authority for this statement? It is further stated in the leading article: "Anoxæmia is a condition of early infancy."

Dr. Haldane's contributions in *The British Medical Journal* and elsewhere have been extremely interesting and to a man in general practice the theories advanced have made clear many processes of disease, *e.g.*, the cause of many so-called heart attacks in persons said to be suffering from nerves, attacks of dyspnœa in soldiers suffering from the effects of gas poisoning, rapid death in young children suffering from respiratory complications of measles, some cases of rapid death in people alleged to have heart disease, more particularly those of plethoric habit, the cause of death in senile decay. Most of us have been present at "post mortems" where no cause of death could be ascertained. Some of these deaths are probably due to anoxæmia.

An oxygen apparatus as devised by Dr. Haldane would be a useful part of the equipment of every general practitioner.

In connexion with pneumonia, the time has probably come when tracheotomy may be performed and oxygen supplied through the tracheotomy tube, to tide the patient over his anoxæmia.

The timely assistance of highly trained physiologists attached to our larger hospitals would do much to lighten many dark pages of our clinical records.

Yours, etc.,

E. S. MEYERS.

South Brisbane, January 4, 1922.

[THE evidence available at the present time shows that when oxygen tension is reduced, a lower concentration of carbon dioxide suffices to produce effective stimulation of the respiratory centre. There is no direct evidence of any other kind. There is a considerable difference between the assumption that "want of oxygen" acts as a stimulus and the fact that the respiratory centre becomes more susceptible to stimulation by carbon dioxide when the oxygen tension is lowered. Dr. Meyers questions the correctness of the assumption that the amount of oxygen taken up by the blood from the alveolar air in the condition described by Dr. Litchfield is smaller than that normally carried and that much of this oxygen is not at once available for the tissues. The term anoxæmia is used by Haldane to imply a variety of conditions. In the leading article it was employed to indicate that peculiar type of failure of respiration in young infants, ostensibly associated with a diminished rate of diffusion of oxygen to the tissues. Under experimental conditions and at high altitudes the rate of diffusion of oxygen may be reduced by a restriction of the oxygen supply in the atmosphere. In anæmia the amount of oxygen is restricted by the diminished amount of hæmoglobin. Again, in neurasthenia the condition of orthopnœa is stated by Haldane to be caused primarily by a diminution of the pulmonary ventilation. The inclusion of these conditions and of the dyspnœa of pneumonia, bronchitis, etc., in the term anoxæmia seems to be unfortunate, in that it brings into prominence only one factor, a mechanical one, of several complex pathological states. The pathology of the condition met with in children is probably quite different from that of any of these states or from the physiological adjustment of normal men or animals to a lowered oxygen supply. As far as we are aware, no one has observed in older children or in adults an apparently idiopathic failure of the blood to provide the tissues with a sufficient amount of oxygen. From the sparse information concerning the physico-chemical behaviour of the blood in infantile examples of anoxæmia it seems probable that the failure is in the oxygen-carrying capacity of the red blood corpuscles.]

A SCHOOL OF TROPICAL MEDICINE.

SIR: Some time ago I suggested to the Dean of the Medical School of Sydney University the advisability of establishing a School of Tropical Medicine at Sydney. I understand that the Australian Institute of Tropical Medicine at Townsville is at present without a director and that during its existence, whilst good research work was carried out, yet it failed to become to any extent a centre for the training of medical men who intended taking up work in the tropics.

The fact that Australia is now responsible for the mandatory territory of New Guinea, in addition to the Northern Territory, each with their problems in tropical sanitation and medicine, should be recognized as a special reason for the training of young graduates in medicine for work in the tropics.

Sydney is geographically and commercially the chief centre, by virtue of its excellent port and facilities, not only of Australasia, but of the far East.

It is possible that the establishment of a modern, well-equipped school of tropical medicine at Sydney University would attract graduates and students from Java, Fiji, Singapore, the Malay States, Hong Kong and other centres in the Pacific.

There already exists in Sydney the nucleus of a teaching staff sufficiently experienced and skilled to undertake the training for a diploma in tropical hygiene. Professor Priestley was on the staff at the Townsville Institute as a colleague of Dr. Breinl. Dr. Harvey Sutton, Lecturer on Preventive Medicine, had considerable experience during the war in combating malaria and other tropical diseases in the Jordan Valley. Dr. Waddy was employed in the Egyptian Ophthlamic Travelling Hospital, Dr. Blackburn has established himself as an expert in the treatment of malaria. Dr. Eustace Ferguson, of the Department of Public Health, is an authority on medical entymology, also with experience in Egypt and Palestine. Professor Harrison has a splendid record in directing the sanitary campaign in Mesopotamia. The precedents of the schools of tropical medicine in London and Liverpool, which have done such excellent work during the past twenty years, show that for a school of tropical medicine to be a success it is not essential that it should actually be located in the tropics, provided it is so situated as to be in touch therewith by sea communication.

With suitable training of young graduates in tropical medicine it is possible that some would find employment

in the Malay States and China, in addition to New Guinea and other centres nearer Australia.

Possibly the Colonial Office, which from time to time advertises appointments for medical practitioners in the tropics, might be induced to offer a quota of appointments to graduates from Australia, were such adequately trained in tropical medicine and hygiene.

Yours, etc.,

J. S. PURDY.

Sydney, January 6, 1922.

THE TEACHING OF OBSTETRICS.

DR. GOODWIN HILL informs us that we have misread one or two words in the manuscript of his letter on the teaching of obstetrics published in last week's issue. In the fourth paragraph the reading should be: "But when a stirring of the political stew flung to the surface, as if buoyed by a gaseous emanation, a man of naught, he, juggling with the people's revenues, endowed the University with a sum of money and a burden of restrictions, caucus-hatched from his own mediocrity, which have filled to overflowing the Halls of Learning with a host of seekers not after learning, but after degrees, and have turned the loom of learning to the distasteful task of trying to weave silken purses from material other than the product of the silkworm."

Books Received.

AIDS TO MEDICINE, by Bernard Hudson, M.D. (Camb.), M.R.C.P. (Lond.), Swiss Federal Diploma; Third Edition, 1921. London: Baillière, Tindall & Cox; Foolscap 8vo., pp. 370, with eleven figures in the text. Price: 4s. 6d. net.

ON MODERN METHODS OF TREATING FRACTURES, INCLUDING THE JACKSONIAN PRIZE ESSAY ON BONE GRAFTING, by Ernest W. Hey Groves, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.); Second Edition; 1921. Bristol: John Wright & Sons, Limited; Crown 4to., pp. 435, with 296 illustrations, some of which are fully coloured. Price: 30s. net.

Medical Appointments.

DR. K. G. MCK. ABERDEEN (B.M.A.) has been appointed a Justice of the Peace for the Northam Magisterial District, Western Australia.

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DR. L. ST. V. WELCH (B.M.A.) has been appointed to act temporarily as an "Appointed Member" of the Licensing Court of the Licensing District of Macleay River, New South Wales.

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DR. J. J. KELLY (B.M.A.) AND DR. A. A. PALMER (B.M.A.) have been appointed Members of the Dental Board of New South Wales.

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DR. E. R. ROSEBY (B.M.A.) has been appointed Government Medical Officer at Gunning, New South Wales.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii..

BENEVOLENT SOCIETY OF NEW SOUTH WALES: Honorary Assistant Physician, Out-Patients' Department, Renwick Hospital for Infants.

MELBOURNE HOSPITAL: Acting Physician to Out-Patients, Dermatologists and Two Medical Clinical Assistants.

UNIVERSITY OF OTAGO: Professor of Bacteriology and Public Health.

VICTORIAN EYE AND EAR HOSPITAL: Two Resident Surgeons.

WALTER AND ELIZA HALL INSTITUTE OF RESEARCH IN PATHOLOGY AND MEDICINE, MELBOURNE HOSPITAL: Whole-Time First Assistant.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phœnix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Manchester Unity Independent Order of Oddfellows Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 3, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, 6, Bank of New South Wales Chambers, St. George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

JAN. 17.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JAN. 24.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
JAN. 25.—Victorian Branch, B.M.A.: Council.
JAN. 26.—Brisbane Hospital for Sick Children: Clinical Meeting.
JAN. 27.—Queensland Branch, B.M.A.: Council.
FEB. 3.—Queensland Branch, B.M.A.: Branch.
FEB. 8.—Federal Committee of the British Medical Association in Australia.
FEB. 8.—Western Australian Branch, B.M.A.: Council.
FEB. 9.—Victorian Branch, B.M.A.: Council.
FEB. 9.—Brisbane Hospital Clinical Society.
FEB. 10.—Tasmanian Branch, B.M.A.: Annual Meeting.
FEB. 10.—Queensland Branch, B.M.A.: Council.
FEB. 10.—South Australian Branch, B.M.A.: Council.
FEB. 14.—New South Wales Branch, B.M.A.: Ethics Committee.
FEB. 21.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
FEB. 22.—Victorian Branch, B.M.A.: Council.
FEB. 23.—South Australian Branch, B.M.A.: Branch.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)